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# Programmer's Quick Reference Guide

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For Safety information, Warranties, and Regulatory  
information, see the pages at the end of this book.

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## HP 54520C and 54540C Series Oscilloscopes

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# Introduction

The Quick Reference Guide lists the commands and queries with their corresponding arguments and returned formats. The arguments for each command list the minimum argument required. The part of the command or query listed in uppercase letters refers to the short form of that command or query. The long form is the combination of uppercase and lowercase letters.

## Conventions

The following conventions are used in this guide:

- <> Angular brackets enclose words or characters that symbolize a program code parameter or an HP-IB command.
- ::= "is defined as." For example, <A> ::= <B> indicates that <A> can be replaced by <B> in any statement containing <A>.
- | "or." Indicates a choice of one element from a list. For example, <A> | <B> indicates <A> or <B> but not both.
- ... An ellipsis (trailing dots) indicate that the preceding element may be repeated one or more times.
- [ ] Square brackets indicate that the enclosed items are optional.
- { } When several items are enclosed by braces, one, and only one of these elements may be selected.

## Suffix Multipliers

The suffix multipliers available for arguments are:

EX ::= 1E18	M ::= 1E-3
PE ::= 1E15	U ::= 1E-6
T ::= 1E12	N ::= 1E-9
G ::= 1E9	P ::= 1E-12
MA ::= 1E6	F ::= 1E-15
K ::= 1E3	A ::= 1E-18

For more information on specific commands or queries, refer to the *HP 54520C and 54540C Series Oscilloscopes Programmer's Reference*.

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## \*CLS

Command \*CLS

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## \*DMC

Command \*DMC <ascii\_string>,<block\_data>  
Where: <ascii\_string> ::= a quoted ascii string  
<block\_data> ::= definite block data in IEEE 488.2 # format

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## \*EMC

Command \*EMC {{OFF| 0} | {ON |1})  
Query \*EMC?  
Returned Format {0| 1}<NL>

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## \*ESE

Command \*ESE <mask\_argument>  
Query \*ESE?  
Returned Format <mask\_argument><NL>  
Where: <mask\_argument> ::= integer, 0 to 255

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## \*ESR?

Query \*ESR?  
Returned Format <status><NL>  
Where: <status> ::= integer, 0 to 255

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## \*GMC?

Query \*GMC? <ascii\_string>  
Returned Format <block\_data><NL>  
Where: <ascii\_string> ::= a quoted string  
<block\_data> ::= definite block data in # format

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## Programmer's Quick Reference Guide

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### \*IDN?

**Query** \*IDN?  
**Returned Format** HEWLETT-PACKARD,545XXC,YYYYYYYYYY,ZZ.ZZ,ZZ.ZZ,ZZ.ZZ,Z.ZZZ,<NL>  
**Where:** <XXC> ::= model number is 20C (HP 54520C), 22C (HP 54522C),  
40C (HP 54540C), or 42C (HP 54542C)  
<YYYYYYYYYY> ::= the serial number of the instrument  
<ZZ.ZZ> ::= the software revision of the software modules  
(Boot ROM, Flash ROM version of Boot ROM, System, Keyboard  
ROM). 00.00 = not installed  
<Z.ZZZ> ::= the telecommunication mask option  
null = no option, 0.001 = option installed

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### \*LMC

**Query** \*LMC?  
**Returned Format** <ascii\_string><NL>  
**Where:** <ascii\_string> ::= string list separated by commas

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### \*LRN?

**Query** \*LRN?  
**Returned Format** :SYSTem:SETup <setup><NL>  
**Where:** <setup> ::= #800002048<learn\_string>  
<learn\_string> ::= 2048 bytes in length

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### \*OPC

**Command** \*OPC  
**Query** \*OPC?  
**Returned Format** 1<NL>

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### \*OPT ?

**Query** \*OPT?  
**Returned Format** 0<NL> or 000.1<NL>  
**Where:** 0 = no option  
0.001 = telecom mask option installed

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## \*PMC

**Command** \*PMC

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## \*RCL

**Command** \*RCL {0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9}

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## \*RST

**Command** \*RST

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## \*SAV

**Command** \*SAV {1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9}

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## \*SRE

**Command** \*SRE <mask\_argument>  
**Query** \*SRE?  
**Returned Format** <mask><NL>  
**Where:** <mask\_argument> ::= integer, 0 to 255  
                  <mask> ::= sum of all bits that are set - integer, 0 through  
                  255

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## \*STB?

**Query** \*STB?  
**Returned Format** <value><NL>  
**Where:** <value> ::= integer, 0 through 255

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## \*TRG?

**Command** \*TRG

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### \*TST?

<b>Query</b>	*TST?
<b>Returned Format</b>	<result><NL>
<b>Where:</b>	<result> ::= 0 or non-zero value. 0 indicates the test passed. non-zero indicates the test failed

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### \*WAI

<b>Command</b>	*WAI
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### :ACQuire:COMplete

<b>Command</b>	:ACQuire:COMplete <complete_argument>
<b>Query</b>	:ACQuire:COMplete?
<b>Returned Format</b>	[ :ACQuire:COMplete] <complete_argument><NL>
<b>Where:</b>	<complete_argument> ::= integer, 0 to 100 percent

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### :ACQuire:COUNt

<b>Query</b>	:ACQuire:COUNt <count_argument>
<b>Returned Format</b>	:ACQuire:COUNt?
<b>Where:</b>	[ :ACQuire:COUNt] <count_argument><NL>
	<count_argument> ::= integer, 1 to 2048 (depending on the acquisition type)

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### :ACQuire:POINTs

<b>Command</b>	:ACQuire:POINTs <points_argument>
<b>Query</b>	:ACQuire:POINTs?
<b>Returned Format</b>	[ :ACQuire:POINTs] <points_argument><NL>
<b>Where:</b>	<points_argument> ::= integer, 500 in repetitive mode, 512, 1024, 2048, 4196, 8192, 16384, or 32768 in the real-time mode (sequential mode off), or 4 through 32768 in the real-time mode (sequential mode on)

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## :ACQuire:TYPE

<b>Command</b>	:ACQuire:TYPE {NORMAL   AVERage   ENVelope   PDETect   RAWData[,<length>][,<acquisitions>]][,{NORMAL   AVERage   ENVelope }]
<b>Query</b>	:ACQuire:TYPE?
<b>Returned Format</b>	[{:ACQuire:TYPE} {NORMAL   AVERage   ENVelope   PDETect   RAWData,<length>,<acquisitions><NL>]
<b>Where:</b>	<length> ::= integer, 4 to 32768 <acquisitions> ::= dependent on length of acquisitions and buffer size

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## :AUToscale

<b>Command</b>	:AUToscale
<b>Query</b>	:AUToscale?
<b>Returned Format</b>	[{:AUToscale} {0   1}<NL>]

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## :BEEPer

<b>Command</b>	:BEEPer [{OFF   0}   {ON   1}]
<b>Query</b>	:BEEPer?
<b>Returned Format</b>	[{:BEEPer} {0 1}<NL>]

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## :BLANK

<b>Command</b>	:BLANK <display>
<b>Where:</b>	<display> ::= {CHANnel<n>   FUNCtion{1 2 3 4}   WMEMory{1   2   3   4}   PMEMory{1   2}} <n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4 (HP 54540C/54542C)

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## :BNC

<b>Command</b>	:BNC {PROBe   TRIGger}
<b>Query</b>	:BNC?
<b>Returned Format</b>	[{:BNC} {PROBe   TRIGger}<NL>]

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### :CALibrate:DATA:ASCii?

**Query** :CALibrate:DATA:ASCii?  
**Returned Format** [:CALibrate:DATA:ASCII] <data>,<data>,...<NL>  
**Where:** <data> ::= calibration data

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### :CALibrate:SETup?

**Query** :CALibrate:SETup?  
**Returned Format** :CALibrate:TNULL]  
**Where:** <null\_value\_n>,<null\_value\_n>,<null\_value\_n><NL>  
<null\_value\_n> ::= exponential, channel 1 to channel<n> skew,  
where n = 2 (HP 54520C/54522C) or 2 through 4  
(HP 54540C/54542C) in format

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### :CALibrate:TNULL

**Command** :CALibrate:TNULL <null\_value\_n>  
**Query** :CALibrate:TNULL?  
**Returned Format** [:CALibrate:TNULL] <null\_value\_n><NL>  
**Where:** <null\_value\_n> ::= exponential, channel 1 to channel<n> skew,  
where n = 2 (HP 54520C/54522C) or 2 through 4  
(HP 54540C/54542C)

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### :CHANnel<n>:COUpling

**Command** :CHANnel<n>:COUpling {AC | DC | DCFifty}  
**Query** :CHANnel<n>:COUpling?  
**Returned Format** [:CHANnel<n>:COUpling] {AC | DC | DCFifty}<NL>  
**Where:** <n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
(HP 54540C/54542C)

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### :CHANnel<n>:DISPLAY

**Command** :CHANnel<n>:DISPLAY {{OFF | 0} | {ON | 1}}  
**Query** :CHANnel<n>:DISPLAY?  
**Returned Format** [:CHANnel<n>:DISPLAY {0 | 1}<NL>  
**Where:** <n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
(HP 54540C/54542C)

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### :CHANnel<n>:ECL

Command :CHANnel<n>:ECL  
Where: <n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
(HP 54540C/54542C)

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### :CHANnel<n>:HFReject

Command :CHANnel<n>:HFReject {{OFF | 0} | {ON | 1}}  
Query :CHANnel<n>:HFReject?  
Returned Format [:CHANnel<n>:HFReject] {0 | 1}<NL>  
Where: <n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
(HP 54540C/54542C)

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### :CHANnel<n>:LFReject

Command :CHANnel<n>:LFReject {{OFF | 0} | {ON | 1}}  
Query :CHANnel<n>:LFReject?  
Returned Format [:CHANnel<n>:LFReject] {0 | 1}<NL>  
Where: <n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
(HP 54540C/54542C)

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### :CHANnel<n>:OFFSet

Command :CHANnel<n>:OFFSet <offset\_argument>  
Query :CHANnel<n>:OFFSet?  
Returned Format [:CHANnel<n>:OFFSet] <offset\_argument><NL>  
Where: <n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
(HP 54540C/54542C)  
<offset\_argument> ::= exponential, offset value in volts

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:CHANnel<n>:PROBe

:CHANnel<n>:RANGE

:CHANnel<n>:SETup

Query	:CHANnel<n>:SETup?
Returned Format	<pre>:CHAN&lt;n&gt;:COUP {AC DC DCF};     DISP {0   1};     HFR {0   1};     LFR {0   1};     OFFS &lt;offset_argument&gt;;     PROB &lt;probe_argument&gt;;     RANG&lt;range_argument&lt;NL&gt; &lt;range_argument&gt; ::= exponential, full-scale range value &lt;offset_argument&gt; ::= exponential, offset value in volts &lt;probe_argument&gt; ::= exponential, 0.9 to 1000.0 &lt;n&gt; ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4     (HP 54540C/54542C)</pre>

:CHANnel<n>;TTL

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## :DIGItize

**Command** :DIGItize CHANnel<n>[,CHANnel<n>[,CHANnel<n>[,CHANnel<n>]]]  
**Where:** <n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
(HP 54540C/54542C)

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## :DISK:CDIRectory

**Command** :DISK:CDirectory <directory\_name>  
**Where:** <directory\_name> ::= 1 to 65 character quoted ASCII string

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## :DISK:DELetE

**Command** :DISK:DELetE <file\_name>  
**Where:** <file\_name> ::= 1 to 8 character quoted ASCII string, if DOS,  
can have a 0 to 3 character extension

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## :DISK:DIRectory?

**Query** :DISK:DIRectory?  
**Returned Format** [:DISK:DIRectory] <number\_of\_files><cr><lf><directory>  
**Where:** <number\_of\_files> ::= integer, number of files (that follow)  
in the root directory  
<directory> ::= {<filename>,<ext>,<date>,<time>,<size>,  
<description><cr><lf>...}  
<ext> ::= {SETup | WAVEform | TEXT | PIXel}  
<date> ::= DDMMYY  
<time> ::= HH:MM:SS  
<size> ::= an integer  
<description> ::= LIF format: Model + C1 + HP545XX + Source,  
DOS format: Model = DOS file (no description)

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## :DISK:FORMAT

**Command** :DISK:FORMAT <format\_type>  
**Where:** <format\_type> ::= {DOS | LIF}

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## :DISK:LOAD

Command :DISK:LOAD <file\_name>,<destination> [,<format>]  
Where: <filename> ::= quoted ascii string DOS compatible filename.  
1 to 8 character ASCII string, if DOS, may have a 0 to 3  
character extension  
Either .wav or .txt may be used as a suffix after the  
filename. If no file suffix is specified, the default is  
.wav.  
<destination> ::= {WMemory {1 | 2 | 3 | 4} |  
SETup{0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9} |  
PMEMemory{ 1 | 2})  
<format> ::= {TEXT | INTernal}

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## :DISK:MDIRectory

Command :DISK:MDirectory <directory\_name>  
Where: <directory\_name> ::= 1 to 65 character quoted ASCII string

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## :DISK:PWD?

Query :DISK:PWD?  
Returned Format: [:DISK:PWD] <present\_working\_directory>

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## :DISK:SIMage

Command :DISK:SIMage <file\_name> [|,<format>| [|,<compression>|  
|,<rendering>|]]  
Where: <filename> ::= 1 to 8 character quoted ASCII string, if DOS,  
can have a 0 to 3 character extension  
<format> ::= {TIFF | PCX | EPS}  
<compression> ::= {ON | OFF}  
<rendering> ::= {BW | COLOR | GReen}

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**:DISK:STORe**

<b>Command</b>	<code>:DISK:STORe &lt;source&gt;,&lt;file_name&gt;[,&lt;format&gt;]</code>
<b>Where:</b>	<code>&lt;source&gt; ::= {CHANnel&lt;n&gt;   WMEMORY{1   2   3   4}  </code> <code>SETupN {0   1   2   3   4   5   6   7   8   9}  </code> <code>PMEMORY {1   2}</code> <code>&lt;n&gt; ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4</code> <code>(HP 54540C/54542C)</code> <code>&lt;filename&gt; ::= a descriptive name of the file up to 8</code> <code>characters long</code> <code>&lt;format&gt; ::= {INTERNAL   TEXT [, {&lt;XYPairs&gt;   &lt;YValues&gt;  </code> <code>&lt;VERBOSE&gt;}]}</code>

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**:DISPLAY:COLumn**

<b>Command</b>	<code>:DISPLAY:COLumn &lt;column_number&gt;</code>
<b>Query</b>	<code>:DISPLAY:COLumn?</code>
<b>Returned Format</b>	<code>[:DISPLAY:COLumn] &lt;column_number&gt;&lt;NL&gt;</code>
<b>Where:</b>	<code>&lt;column_number&gt; ::= integer, 0 through 78</code>

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**:DISPLAY:CONNect**

<b>Command</b>	<code>:DISPLAY:CONNect {{OFF   0}   {ON   1}}</code>
<b>Query</b>	<code>:DISPLAY:CONNect?</code>
<b>Returned Format</b>	<code>[:DISPLAY:CONNect] {0   1}&lt;NL&gt;</code>

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**:DISPLAY:DATA**

<b>Command</b>	<code>:DISPLAY:DATA &lt;binary_block&gt;</code>
<b>Query</b>	<code>:DISPLAY:DATA?</code>
<b>Returned Format</b>	<code>[:DISPLAY:DATA] #800016576&lt;16576 bytes of binary data&gt;&lt;NL&gt;</code>
<b>Where:</b>	<code>&lt;binary_block&gt; ::= definite block data in # format</code>

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**:DISPLAY:FORMAT**

<b>Command</b>	<code>:DISPLAY:FORMAT {1   2   4}</code>
<b>Query</b>	<code>:DISPLAY:FORMAT?</code>
<b>Returned Format</b>	<code>[:DISPLAY:FORMAT] {1   2   4}&lt;NL&gt;</code>

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### :DISPlay:GRATicule

**Command** :DISPLAY:GRATicule {AXES | GRID | FRAMe| OFF}  
**Query** :DISPLAY:GRATicule?  
**Returned Format** [:DISPLAY:GRATicule] {AXES | GRID | FRAMe | OFF}<NL>

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### :DISPlay:INVerse

**Command** :DISPLAY:INVerse {{OFF | 0} | {ON| 1}}  
**Query** :DISPLAY:INVerse?  
**Returned Format** [:DISPLAY:INVerse] {0| 1}<NL>

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### :DISPlay:LINE

**Command** :DISPLAY:LINE <ascii\_string>  
**Where:** <ascii\_string> ::= any series of ascii characters enclosed in quotes

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### :DISPlay:MASK

**Command** :DISPLAY:MASK <mask\_argument>  
**Query** :DISPLAY:MASK?  
**Returned Format** [:DISPLAY:MASK] <mask\_argument><NL>  
**Where:** <mask\_argument> ::= integer, 0 through 255

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### :DISPlay:PERSistence

**Command** :DISPLAY:PERSistence {SINGLE | INFinite | 0 | {0.5 to 10} | 11}  
**Query** :DISPLAY:PERSistence?  
**Returned Format** [:DISPLAY:PERSistence] <value><NL>  
**Where:** <value> ::= exponential, {0 (minimum) | {0.5 to 10} | 11 (infinite)} in the repetitive mode, {SINGLE | INFinite} in real-time mode

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**:DISPlay:ROW**

<b>Command</b>	<code>:DISPLAY:ROW &lt;row_number&gt;</code>
<b>Query</b>	<code>:DISPLAY:ROW?</code>
<b>Returned Format</b>	<code>[{:DISPLAY:ROW] &lt;row_number&gt;&lt;NL&gt;</code>
<b>Where:</b>	<code>&lt;row_number&gt; ::= integer, 0 through 24</code>

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**:DISPlay:SCReen**

<b>Command</b>	<code>:DISPLAY:SCReen {{OFF   0}   {ON   1}}</code>
<b>Query</b>	<code>:DISPLAY:SCReen?</code>
<b>Returned Format</b>	<code>[{:DISPLAY:SCReen] {0   1}&lt;NL&gt;</code>

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**:DISPlay:SETUp?**

<b>Query</b>	<code>:DISPLAY:SETUp?</code>
<b>Returned Format</b>	<code>:DISP:COL &lt;column_number&gt;; CONN {0   1}; FORM {1   2   4}; GRAT {AXES   FRAM   GRID   OFF}; INV {0   1}; MASK &lt;mask_argument&gt;; PERS &lt;pers_argument&gt;; ROW &lt;row_number&gt;; SCR {0   1}; SOUR PMEM {0   1   2}; MARK {0   1}&lt;NL&gt;</code>
<b>Where:</b>	<code>&lt;column_number&gt; ::= integer, 0 through 78 &lt;mask_argument&gt; ::= integer, 0 to 255 &lt;pers_argument&gt; ::= exponential, {0   .5 to 10   11} in the repetitive mode, {SINGle   INFinite} in the real-time mode &lt;row_number&gt; ::= integer, 0 to 24</code>

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**:DISPlay:SOURce**

<b>Command</b>	<code>:DISPLAY:SOURce PMEMory{0   1   2 }</code>
<b>Query</b>	<code>:DISPLAY:SOURce?</code>
<b>Returned Format</b>	<code>[{:DISPLAY:SOURce] PMEMory{0   1   2 }&lt;NL&gt;</code>

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## :DISPlay:STRing

Command :DISPlay:STRing <string\_argument>  
Where: <string\_argument> ::= text string up to 90 characters

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## :DISPlay:TEXT

Command :DISPlay:TEXT BLANK

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## :DISPlay:{MARKer|TMARKer|VMARKer}

Command :DISPlay:{MARKer|TMARKer|VMARKer} {{OFF | 0} | {ON | 1}}  
Query :DISPlay:MARKer|TMARKer|VMARKer?  
Returned Format [:DISPlay:MARKer|TMARKer|VMARKer] {0 | 1}<NL>

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## :ERASe

Command :ERASe {PMEMory0<pmemory\_num>}  
Where: <pmemory\_num> ::= integer, 1 or 2 @MODULE RULE =

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## :EXTernal:COUPling

Command :EXTernal:COUPling {AC | DC | DCFifty}  
Query :EXTernal:COUPling?  
Returned Format [:EXTernal:COUPling] {AC | DC | DCFifty}<NL>

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## :EXTernal:HFReject

Command :EXTernal:HFReject {{OFF | 0} | {ON | 1}}  
Query :EXTernal:HFReject?  
Returned Format [:EXTernal:HFReject] {0 | 1}<NL>

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**:EXTernal:LFReject**

<b>Command</b>	:EXTernal:LFReject {{OFF   0}   {ON   1}}
<b>Query</b>	:EXTernal:LFReject?
<b>Returned Format</b>	[{:EXTernalLFReject] {0   1}<NL>

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**:EXTernal:PROBe**

<b>Command</b>	:EXTernal:PROBe <probe_argument>
<b>Query</b>	:EXTernal:PROBe?
<b>Returned Format</b>	[{:EXTernal:PROBe] <probe_argument><NL> <probe_argument> ::= exponential, 0.9 to 1000.0

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**:EXTernal:RANGE**

<b>Command</b>	:EXTernal:RANGE <range_argument>
<b>Query</b>	:EXTernal:RANGE?
<b>Returned Format</b>	[{:EXTernal:RANGE] <range_argument><NL> <range_argument> ::= exponential, full-scale range value

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**:EXTernal:SETUp**

<b>Query</b>	:EXTernal:SETUp?
<b>Returned Format</b>	:EXT:COUP {AC DC DCF}; HFR {0   1}; LFR {0   1}; PROB <probe_argument>; RANG<range_argument><NL>
<b>Where:</b>	<range_argument> ::= exponential, full-scale range value <probe_argument> ::= exponential, 0.9 to 1000.0

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**:FUNCTION{1|2|3|4}:ADD**

<b>Command</b>	:FUNCTION{1   2   3   4}:ADD <operand>,<operand>
<b>Where:</b>	<operand> ::= {CHANnel<n>   WMEMory{1   2   3   4}} <n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4 (HP 54540C/54542C)

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### :FUNCTION{1|2|3|4}:DIFF

Command :FUNCTION{1 | 2 | 3 | 4}:DIFF <operand>  
Where: <operand> ::= {CHANnel<n> | WMEMemory{1 | 2 | 3 | 4})  
<n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
(HP 54540C/54542C)

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### :FUNCTION{1|2|3|4}:DISPLAY

Command :FUNCTION{1 | 2 | 3 | 4}:DISPLAY {{OFF | 0) | (ON | 1))  
Query :FUNCTION{1 | 2 | 3 | 4}:DISPLAY?  
Returned Format [:FUNCTION{1 | 2 | 3 | 4}[:DISPLAY] {0 | 1}<NL>

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### :FUNCTION{1|2|3|4}:FFT

Command :FUNCTION{1 | 2 | 3 | 4}:FFT <operand>  
Where: <operand> ::= {CHANnel<n> | WMEMemory{1 | 2 | 3 | 4})  
<n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
(HP 54540C/54542C)

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### :FUNCTION{1|2|3|4}:FREQuency

Command :FUNCTION{1 | 2 | 3 | 4}:FREQuency <frequency\_argument>  
Query :FUNCTION{1 | 2 | 3 | 4}:FREQuency?  
Returned Format [:FUNCTION{1 | 2 | 3 | 4}:FREQuency] <frequency\_argument><NL>  
Where: <frequency\_argument> ::= exponential, center frequency from  
0 Hz to 1.5X of frequency span

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### :FUNCTION{1|2|3|4}:INTegrate

Command :FUNCTION{1 | 2 | 3 | 4}:INTegrate <operand>  
Where: <operand> ::= {CHANnel<n> | WMEMemory{1 | 2 | 3 | 4})  
<n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
(HP 54540C/54542C)

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**:FUNCTION{1|2|3|4}:INVert**

Command :FUNCTION{1 | 2 | 3 | 4}:INVert <operand>  
 Where: <operand> ::= {CHANnel<n> | WMEMORY{1 | 2 | 3 | 4})  
 <n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
 (HP 54540C/54542C)

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**:FUNCTION{1|2|3|4}:LEVel**

Command :FUNCTION{1 | 2 | 3 | 4}:LEVel <level\_argument>  
 Query :FUNCTION{1 | 2 | 3 | 4}:LEVel?  
 Returned Format [:FUNCTION{1 | 2 | 3 | 4}:LEVel] <level\_argument><NL>  
 Where: <level\_argument> ::= exponential, level value 0 to + or -  
 600 dbm

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**:FUNCTION{1|2|3|4}:MAGNify**

Command :FUNCTION{1 | 2 | 3 | 4}:MAGNify {{OFF | 0} | {ON | 1}}  
 Query :FUNCTION{1 | 2 | 3 | 4}:MAGNify?  
 Returned Format [:FUNCTION{1 | 2 | 3 | 4}:MAGNify] {0 | 1}<NL>

---

**:FUNCTION{1|2|3|4}:MODE?**

Query :FUNCTION{1 | 2 | 3 | 4}:MODE?  
 Returned Format [:FUNCTION{1 | 2 | 3 | 4}:MODE]  
 Where: <operation>,<operand>[,<operand>]  
 <operation> ::= {ADD | SUBTRACT | MULTIPLY | VERSUS | ONLY |  
 INVERT | INTEGRATE | DIFF | FFT}  
 <operand> ::= {CHANnel<n> | WMEMORY{1 | 2 | 3 | 4})  
 <n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
 (HP 54540C/54542C)

---

**:FUNCTION{1|2|3|4}:MULTiply**

Command :FUNCTION{1 | 2 | 3 | 4}:MULTiply <operand>,<operand>  
 Where: <operand> ::= {CHANnel<n> | WMEMORY{1 | 2 | 3 | 4})  
 <n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
 (HP 54540C/54542C)

---

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### :FUNCTION{1|2|3|4}:OFFSet

**Command** :FUNCTION{1 | 2 | 3 | 4}:OFFSet <offset\_argument>  
**Query** :FUNCTION{1 | 2 | 3 | 4}:OFFSet?  
**Returned Format** [:FUNCTION{1 | 2 | 3 | 4}:OFFSet] <offset\_argument><NL>  
**Where:** <offset\_argument> ::= exponential, offset value of 0 to  
±voltage full scale, or 0 to ±200 dbm for FFT

---

### :FUNCTION{1|2|3|4}:ONLY

**Command** :FUNCTION{1 | 2 | 3 | 4}:ONLY <operand>  
**Where:** <operand> ::= {CHANnel<n> | WMEMory{1 | 2 | 3 | 4})  
<n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
(HP 54540C/54542C)

---

### :FUNCTION{1|2|3|4}:PEAK

**Command** :FUNCTION{1 | 2 | 3 | 4}:PEAK <peak1\_number>, <peak2\_number>  
**Query** :FUNCTION{1 | 2 | 3 | 4}:PEAK?  
**Returned Format** [:FUNCTION{1 | 2 | 3 | 4}:PEAK]  
**Where:** <peak1\_number>, <peak2\_number><NL>  
<peak1\_number> ::= integer, 1 through 99  
<peak2\_number> ::= integer, 1 through 99

---

### :FUNCTION{1|2|3|4}:POINTs

**Command** :FUNCTION{1 | 2 | 3 | 4}:POINTs <points\_argument>  
**Query** :FUNCTION{1 | 2 | 3 | 4}:POINTs?  
**Returned Format** [:FUNCTION{1 | 2 | 3 | 4}:POINTs] <points\_argument><NL>  
**Where:** <points\_argument> ::= integer, 512, 1024, 2048, 4096, 8192,  
16384, or 32768

---

### :FUNCTION{1|2|3|4}:RANGE

**Command** :FUNCTION{1 | 2 | 3 | 4}:RANGE <range\_argument>  
**Query** :FUNCTION{1 | 2 | 3 | 4}:RANGE?  
**Returned Format** [:FUNCTION{1 | 2 | 3 | 4}:RANGE] <range\_argument><NL>  
**Where:** <range\_argument> ::= exponential full scale vertical range in  
volts, dB, or dBm

---

---

**:FUNCTION{1|2|3|4}:SETup?**

<b>Query</b>	:FUNCTION{1   2   3   4}:SETup?
<b>Returned Format</b>	<pre>:FUNCTION{1   2   3   4}:DISP {0 1};   {ADD   SUBT   MULT   VERS   ONLY   INV   INT   DIFF     FFT} {CHAN&lt;n&gt;   WMEM {1   2   3   4} [, {CHAN&lt;n&gt;     WMEM {1   2   3   4}}];   OFF &lt;offset_argument&gt;;   RANG &lt;range_argument&gt;;   FREQ &lt;frequency_argument&gt;; (FFT only)   LEV &lt;level_argument&gt;; (FFT only)   MAGN {0   1}; (FFT only)   PEAK &lt;peak1_number&gt;,peak2_number&gt;; (FFT only)   POIN &lt;points_argument&gt;; (FFT only)   SPAN &lt;span_argument&gt;; (FFT only)   WIND {RECT   HANN   FLAT} (FFT only)&lt;NL&gt;</pre>
<b>Where:</b>	<p>&lt;n&gt; ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4 (HP 54540C/54542C)</p> <p>&lt;offset_argument&gt; ::= exponential offset value of 0 to <math>\pm</math> 200 dBm for FFT function</p> <p>&lt;range_argument&gt; ::= exponential full scale vertical range in volts, dB, or dBm</p> <p>&lt;frequency_argument&gt; ::= exponential center frequency from 0 Hz to 1.5X of frequency span</p> <p>&lt;level_argument&gt; ::= exponential level value 0 to <math>\pm</math> 600 dBm</p> <p>&lt;peak1_number&gt; ::= integer, 1 through 99</p> <p>&lt;peak2_number&gt; ::= integer, 1 through 99</p> <p>&lt;points_argument&gt; ::= integer, 512, 1024, 2048, 4096, 8192, 16384, or 32768</p> <p>&lt;span_argument&gt; ::= exponential number in hertz</p>

---

**:FUNCTION{1|2|3|4}:SPAN**

<b>Command</b>	:FUNCTION{1   2   3   4}:SPAN <span_argument>
<b>Query</b>	:FUNCTION{1   2   3   4}:SPAN?
<b>Returned Format</b>	[:FUNCTION{1   2   3   4}:SPAN] <span_argument><NL>
<b>Where:</b>	<span_argument> ::= exponential number in hertz

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---

### :FUNCTION{1|2|3|4}:SUBTract

**Command** :FUNCTION{1 | 2|3|4}:SUBTract <operand1>,<operand2>  
**Where:** <operand1> ::= {CHANNEL<n> | WMEMORY{1 | 2 | 3 | 4}}  
<operand2> ::= {CHANNEL<n> | WMEMORY{1 | 2 | 3 | 4}}  
<n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
(HP 54540C/54542C)

---

### :FUNCTION{1|2|3|4}:VERSus

**Command** :FUNCTION{1 | 2 | 3 | 4}:VERSus <Y\_operand>,<X\_operand>  
**Where:** <Y\_operand1> ::= {CHANNEL<n> | WMEMORY{1 | 2 | 3 | 4}}  
<X\_operand2> ::= {CHANNEL<n> | WMEMORY{1 | 2 | 3 | 4}}  
<n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4  
(HP 54540C/54542C)

---

### :FUNCTION{1|2|3|4}:WINDOW

**Command** :FUNCTION{1 | 2 | 3 | 4}:WINDOW {RECTangular | HANNing |  
FLATtop}  
**Query** :FUNCTION:WINDOW?  
**Returned Format** [:FUNCTION{1|2|3|4}:WINDOW] {RECTangular | HANNing |  
FLATtop}<NL>

---

### :HARDcopy:LENGTH

**Command** :HARDcopy:LENGTH {11 | 11.6 | LETTER | A4}  
**Query** :HARDcopy:LENGTH?  
**Returned Format** [:HARDcopy:LENGTH] {11 | 11.6 | LETTER | A4}<NL>

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---

**:HARDcopy:MODE**

<b>Command</b>	<code>:HARDcopy:MODE {THINKJET   DJ5XBW75DPI   DJ5XBW100DPI   DJ5XBW150DPI   DJ5XBW300DPI   DJET75DPI   DJET100DPI   DJET150DPI   DJET300DPI   LASERJET_II   LASERJET_IIP   PJETXL300   PJETXL   PAINTJET   COLORPRO   HP7475A   HP7470A   HP7550A   DJET310C   DJET320C   DJET500C   DJET540C   DJET560C   DJET600C   DJET660C   DJET850C   DJET855C   P1200C   QUIETJETALT   EPSON5000}</code>
<b>Query</b> <b>Returned Format</b>	<code>:HARDcopy:MODE?</code> <code>[:HARDcopy:MODE] {THINKJET   DJ5XBW75DPI   DJ5XBW100DPI   DJ5XBW150DPI   DJ5XBW300DPI   DJET75DPI   DJET100DPI   DJET150DPI   DJET300DPI   LASERJET_II   LASERJET_IIP   PJETXL300   PJETXL   PAINTJET   COLORPRO   HP7475A   HP7470A   HP7550A   DJET310C   DJET320C   DJET500C   DJET540C   DJET560C   DJET600C   DJET660C   DJET850C   DJET855C   P1200C   QUIETJETALT   EPSON5000}&lt;NL&gt;</code>

---

**:HARDcopy:PAGE**

<b>Command</b>	<code>:HARDcopy:PAGE {MANual   AUTomatic}</code>
<b>Query</b> <b>Returned Format</b>	<code>:HARDcopy:PAGE?</code> <code>[:HARDcopy:PAGE] {MANual   AUTomatic}&lt;NL&gt;</code>

---

**:HARDcopy:PLOT:AREA**

<b>Command</b>	<code>:HARDcopy:PLOT:AREA {ALL   DISPlay   FACTOrs   GRATicule   LABeled}</code>
<b>Query</b> <b>Returned Format</b>	<code>:HARDcopy:PLOT:AREA?</code> <code>[:HARDcopy:PLOT:AREA] {ALL   DISPlay   FACTOrs   GRATicule   LABeled}&lt;NL&gt;</code>

---

**:HARDcopy:PLOT:INITialize**

<b>Command</b>	<code>:HARDcopy:PLOT:INITialize {{OFF   0}   {ON   1}}</code>
<b>Query</b> <b>Returned Format</b>	<code>:HARDcopy:PLOT:INITialize?</code> <code>[:HARDcopy:PLOT:INITialize] {0   1}&lt;NL&gt;</code>

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### :HARDcopy:PLOT:{PEN|COLOr}

<b>Command</b>	:HARDcopy:PLOT:{PEN COLOR } <item>,<pen_number>
<b>Query</b>	:HARDcopy:PLOT:{PEN COLOR}? <item>
<b>Returned Format</b>	[ :HARDcopy:PLOT:{PEN COLOR}] <pen_number><NL>
<b>Where:</b>	<item> ::= {CHANnel<n>   WMEMemory{1   2   3   4}   FUNCTION{1   2   3   4}   PMEMemory{1   2}   Y{1   2}Marker   X{1   2}Marker   GRATicule   TRIGger   TIMEbase   MEASure   TITLEs} <n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4 (HP 54540C/54542C) <pen_number> ::= integer, 0 through 8

---

### :LER?

<b>Query</b>	:LER?
<b>Returned Format</b>	[ :LER] {0   1}<NL>

---

### :LTER?

<b>Query</b>	:LTER?
<b>Returned Format</b>	[ :LTER] {0   1}<NL>

---

### :MARKer:DISPlay

<b>Command</b>	:MARKer:DISPLAY {{OFF   0}   {ON   1}}
<b>Query</b>	:MARKer:DISPLAY?
<b>Returned Format</b>	[ :MARKer:DISPLAY] {0   1}<NL>

---

### :MARKer:MODE

<b>Command</b>	:MARKer:MODE {MANual   WAVEform}
<b>Query</b>	:MARKer:MODE?
<b>Returned Format</b>	[ :MARKer:MODE] {MANual   WAVEform}<NL>

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## :MARKer:SETup?

<b>Query</b>	:MARKer:SETup?
<b>Returned Format</b>	<pre>:MARK:MODE {MAN  WAV};DISP {0   1};     XDEL &lt;xdelta&gt;;     X1P &lt;xposition_argument&gt;;     X2P &lt;xposition_argument&gt;;     X1Y1 {CHAN&lt;n&gt;   FUNC{1   2   3   4}   WMEM{1   2   3   4}};     X2Y2 {CHAN&lt;n&gt;   FUNC{1   2   3   4}   WMEM{1   2   3   4}};     Y1P &lt;yposition_argument&gt;;          (MAN mode only)     Y2P &lt;yposition_argument&gt;;          (MAN mode only)     YDEL &lt;ydelta&gt;;                  (MAN mode only)     Y1P &lt;yposition_argument&gt;;          (MAN mode only)     Y2P &lt;yposition_argument&gt;&lt;NL&gt;  (MAN mode only)</pre>
<b>Where:</b>	<p>&lt;n&gt; ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4 (HP 54540C/54542C)</p> <p>&lt;xdelta&gt; ::= exponential, difference in seconds between x1 and x2 markers</p> <p>&lt;xposition_argument&gt; ::= exponential, xmarker position in seconds or hertz</p> <p>&lt;ydelta&gt; ::= exponential, difference between y1 and y2 markers</p> <p>&lt;yposition_argument&gt; ::= exponential, ymarker position in volts or power</p>

---

## :MARKer:X1Position

<b>Command</b>	:MARKer:X1Position <xposition_argument>
<b>Query</b>	:MARKer:X1Position?
<b>Returned Format</b>	[ :MARKer:X1Position] <xposition_argument><NL>
<b>Where:</b>	<xposition_argument> ::= exponential, xmarker time in seconds, or frequency in hertz

---

## :MARKer:X2Position

<b>Command</b>	:MARKer:X2Position <xposition_argument>
<b>Query</b>	:MARKer:X2Position?
<b>Returned Format</b>	[ :MARKer:X2Position] <xposition_argument><NL>
<b>Where:</b>	<xposition_argument> ::= exponential, xmarker time in seconds, or frequency in hertz

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### :MARKer:X1Y1source

<b>Command</b>	:MARKer:X1Y1source {CHANnel<n>   {FUNCTION{1   2   3   4}   WMEMORY{1   2   3   4}}}
<b>Query</b>	:MARKer:X1Y1source?
<b>Returned Format</b>	[ :MARKer:X1Y1source] {CHANnel<n>  {FUNCTION{1   2   3   4}   WMEMORY{1   2   3   4}}}<NL>
<b>Where:</b>	<n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4 (HP 54540C/54542C)

---

### :MARKer:X2Y2source

<b>Command</b>	:MARKer:X2Y2source {CHANnel<n>   {FUNCTION{1   2   3   4}   WMEMORY{1   2   3   4}}}
<b>Query</b>	:MARKer:X2Y2source?
<b>Returned Format</b>	[ :MARKer:X2Y2source] {CHANnel<n>  {FUNCTION{1   2   3   4}   WMEMORY{1   2   3   4}}}<NL>
<b>Where:</b>	<n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4 (HP 54540C/54542C)

---

### :MARKer:XDELta?

<b>Query</b>	:MARKer:XDELta?
<b>Returned Format</b>	[ :MARKer:XDELta] <xdelta><NL>
<b>Where:</b>	<xdelta> ::= exponential, difference between x1 and x2 markers

---

### :MARKer:Y1Position (Command ignored in waveform mode)

<b>Command</b>	:MARKer:Y1Position <yposition_argument>
<b>Query</b>	:MARKer:Y1Position?
<b>Returned Format</b>	[ :MARKer:Y1Position] <yposition_argument><NL>
<b>Where:</b>	<yposition_argument> ::= exponential, ymarker level in volts, or power in dBm

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**:MARKer:Y2Position** (Command ignored in waveform mode)

<b>Command</b>	:MARKer:Y2Position <yposition_argument>
<b>Query</b>	:MARKer:Y2Position?
<b>Returned Format</b>	[ :MARKer:Y2Position] <yposition_argument><NL>
<b>Where:</b>	<yposition_argument> ::= exponential, ymarker level in volts, or power in dBm

---

**:MARKer:YDELta?**

<b>Query</b>	:MARKer:YDELta?
<b>Returned Format</b>	[ :MARKer:YDELta] <ydelta><NL>
<b>Where:</b>	<ydelta> ::= exponential, difference between y1 and y2 markers

---

**:MEASure:ALL?**

<b>Query</b>	:MEASure:ALL?
<b>Returned Format</b>	[ :MEASure] [ :DElay] <result>; [ :DUTycycle] <result>; [ :FALLtime] <result>; [ :FREQuency] <result>; [ :NWIDth] <result>; [ :OVERshoot] <result>; [ :PERiod] <result>; [ :PREShoot] <result>; [ :PWIDth] <result>; [ :RISetime] <result>; [ :VACRms] <result>; [ :VAMplitude] <result>; [ :VAVerage] <result>; [ :VBASe] <result>; [ :VDCRms] <result>; [ :VMAX] <result>; [ :VMIN] <result>; [ :VPP] <result>; [ :VTOP] <result>; <NL>
<b>Where:</b>	<result> ::= exponential, individual measurement results

---

**:MEASure:COMPARE**

<b>Command</b>	:MEASure:COMPARE <measurement>, <upper_limit>, <lower_limit>
<b>Query</b>	:MEASure:COMPARE? <measurement>
<b>Returned Format</b>	[ :MEASure:COMPARE] <measurement>, <upper_limit>, <lower_limit><NL>
<b>Where:</b>	<measurement> ::= { DELay   DUTycycle   FALLtime   FREQuency   NWIDth   OVERshoot   PERiod   PREShoot   PWIDth   RISetime   VACRms   VAMplitude   VAVerage   VBASe   VDCRms   VMAX   VMIN   VPP   VTOP} <upper_limit> ::= exponential, high limit value <lower_limit> ::= exponential, low limit value

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### :MEASure:CURSor?

**Query** :MEASure:CURSor? {DELTa | STARt | STOP}  
**Returned Format** [:MEASure:CURSor] <time>,<voltage><NL>  
**Where:** <time> ::= exponential, delta time, y1marker time, or y2marker time  
<voltage> ::= exponential, delta voltage, x1marker voltage, or x2marker voltage

---

### :MEASure:DEFine

**Command** :MEASure:DEFine <define\_argument>  
**Query** :MEASure:DEFine? {DELay | PWIDth | NWIDth}  
**Returned Format** [:MEASure:DEFine] <define\_argument><NL>  
**Where:** <define\_argument> ::= {DELay,<polarity>,<edge\_number>,<level>,<polarity>,<edge\_number>,<level> | PWIDth,<level> | NWIDth,<level>}  
<polarity> ::= {POSitive | NEGative}  
<edge\_number> ::= integer, 1 to 4000 specifying a displayed edge  
<level> ::= {MIDDLE | UPPer | LOWER}

---

### :MEASure:DELay

**Command** :MEASure:DELay  
**Query** :MEASure:DELay?  
**Returned Format** [:MEASure:DELay] <value><NL>  
**Where:** <value> ::= exponential, time value in seconds

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**:MEASure:DESTination**

<b>Command</b>	<code>:MEASure:DESTination &lt;source_argument&gt;,&lt;destination_argument&gt;</code>
<b>Query</b>	<code>:MEASure:DESTination? {CHANnel&lt;n&gt;   FUNCTion{1   2   3   4}   SCreen?}</code>
<b>Returned Format</b>	<code>[:MEASure:DESTination] {{CHANnel&lt;n&gt;   {FUNCTION{1   2   3   4}   SCreen}}   {WMEMory{1   2   3   4}   PMEMory{1   2}   MULTiple   OFF}&lt;NL&gt;}</code>
<b>Where:</b>	<code>&lt;source_argument&gt; ::= {{SCreen,{OFF   PMEMory{1   2}}}}   {{CHANnel&lt;n&gt;   FUNCTion{1   2   3   4}}}</code> <code>&lt;destination_argument&gt; ::= {WMEMory{1   2   3   4}   MULTiple   OFF}</code> <code>&lt;n&gt; ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4 (HP 54540C/54542C)</code>

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**:MEASure:DUTycycle**

<b>Command</b>	<code>:MEASure:DUTycycle</code>
<b>Query</b>	<code>:MEASure:DUTycycle?</code>
<b>Returned Format</b>	<code>[:MEASure:DUTycycle] &lt;value&gt;&lt;NL&gt;</code>
<b>Where:</b>	<code>&lt;value&gt; ::= exponential, ratio of positive pulse width to period</code>

---

**:MEASure:ESTArt**

<b>Command</b>	<code>:MEASure:ESTArt &lt;slope_and_occurrence&gt;</code>
<b>Query</b>	<code>:MEASure:ESTArt?</code>
<b>Returned Format</b>	<code>[:MEASure:ESTArt] &lt;slope_and_occurrence&gt;&lt;NL&gt;</code>
<b>Where:</b>	<code>&lt;slope_and_occurrence&gt; ::= integer, -4000 to 4000 (excluding 0)</code>

---

**:MEASure:ESTOp**

<b>Command</b>	<code>:MEASure:ESTOp &lt;slope_and_occurrence&gt;</code>
<b>Query</b>	<code>:MEASure:ESTOp?</code>
<b>Returned Format</b>	<code>[:MEASure:ESTOp] &lt;slope_and_occurrence&gt;&lt;NL&gt;</code>
<b>Where:</b>	<code>&lt;slope_and_occurrence&gt; ::= integer, -4000 to 4000 (excluding 0)</code>

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### **:MEASure:EANalysis**

**Command** :MEASure:EANalysis { {OFF | 0} | {ON | 1} }  
**Query** :MEASure:EANalysis?  
**Returned Format** [:MEASure:EANalysis] {0 | 1}<NL>

---

### **:MEASure:FALLtime**

**Command** :MEASure:FALLtime  
**Query** :MEASure:FALLtime?  
**Returned Format** [:MEASure:FALLtime] <value><NL>  
**Where:** <value> ::= exponential, time value in seconds between lower  
threshold and upper threshold voltage points

---

### **:MEASure:FREQuency**

**Command** :MEASure:FREQuency  
**Query** :MEASure:FREQuency?  
**Returned Format** [:MEASure:FREQuency] <value><NL>  
**Where:** <value> ::= exponential, frequency in hertz

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### **:MEASure:LIMittest**

**Command** :MEASure:LIMittest {MEASure | OFF}

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### **:MEASure:LOWER**

**Command** :MEASure:LOWER [<source>,<lower\_threshold>]  
**Query** :MEASure:LOWER? [<source>]  
**Returned Format** [:MEASure:LOWER] <source>,<lower\_threshold><NL>  
**Where:** <source> ::= {CHANnel<n> | FUNCtion{1 | 2 | 3 | 4} |  
WMEMory{1 | 2 | 3 | 4}}  
<lower\_threshold> ::= integer, user defined lower threshold  
in percent or volts (selected by :MEASure:UNITS)  
<n> ::= integer 1 or 2 (HP 54520C/54522C), or 1 through 4  
(HP 54540C/54542C)

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**:MEASure:MODE**

<b>Command</b>	:MEASure:MODE {STANDARD   USER}
<b>Query</b>	:MEASure:MODE?
<b>Returned Format</b>	[ :MEASure:MODE] {STANDARD   USER}<NL>

---

**:MEASure:MWINDow**

<b>Command</b>	:MEASure:MWINDow {MARKers   SCReen}
<b>Query</b>	:MEASure:MWINDow?
<b>Returned Format</b>	[ :MEASure:MWINDows] {MARKers   SCReen}<NL>

---

**:MEASure:NWIDth**

<b>Command</b>	:MEASure:NWIDth
<b>Query</b>	:MEASure:NWIDth?
<b>Returned Format</b>	[ :MEASure:NWIDth] <value><NL>
<b>Where:</b>	<value> ::= exponential, negative pulse width in seconds

---

**:MEASure:OVERshoot**

<b>Command</b>	:MEASure:OVERshoot
<b>Query</b>	:MEASure:OVERshoot?
<b>Returned Format</b>	[ :MEASure:OVERshoot] <value><NL>
<b>Where:</b>	<value> ::= exponential, ratio of overshoot to Vamplitude

---

**:MEASure:PERiod**

<b>Command</b>	:MEASure:PERiod
<b>Query</b>	:MEASure:PERiod?
<b>Returned Format</b>	[ :MEASure:PERiod] <value><NL>
<b>Where:</b>	<value> ::= exponential, waveform period in seconds

---

**:MEASure:POSTfailure**

<b>Command</b>	:MEASure:POSTfailure {CONTinue   STOP}
<b>Query</b>	:MEASure:POSTfailure?
<b>Returned Format</b>	[ :MEASure:POSTfailure] {CONTinue   STOP}<NL>

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### :MEASure:PREShoot

**Command** :MEASure:PREShoot  
**Query** :MEASure:PREShoot?  
**Returned Format** [:MEASure:PREShoot] <value><NL>  
**Where:** <value> ::= exponential, ratio of preshoot to Vamplitude

---

### :MEASure:PWIDth

**Command** :MEASure:PWIDth  
**Query** :MEASure:PWIDth?  
**Returned Format** [:MEASure:PWIDth] <value><NL>  
**Where:** <value> ::= exponential, width of positive pulse in sseconds

---

### :MEASure:RESults?

**Query** :MEASure:RESults?  
**Returned Format** [:MEASure:RESults] <number\_of\_meas>[;<measurement>]...<NL>  
**Where:** <number\_of\_meas> ::= integer, number of measurements displayed  
on the screen, 0 through 23  
<measurement> ::= {DElay <result> | DUTycycle <result> |  
FALLtime <result> | FREQuency <result> | NWIDth <result> |  
OVERshoot <result> | PERiod <result> | PREShoot <result> |  
PWIDth <result> | RISetime <result> | TMAX <result> | TMIN  
<result> | TVOLT <result> | VACRms <result> VAMplitude  
<result> | VAVerage <result> | VBASe <result> | VDCRms  
<result> | VMAX <result> | VMIN <result> | VPP <result> |  
VTIMe <result> | VTOP <result>}  
<result> ::= exponential, individual measurement results

---

### :MEASure:RISetime

**Command** :MEASure:RISetime  
**Query** :MEASure:RISetime?  
**Returned Format** [:MEASure:RISetime] <value><NL>  
**Where:** <value> ::= exponential, rise time in seconds

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**:MEASure:SCRatch**

<b>Command</b>	<code>:MEASure:SCRatch</code>
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**:MEASure:SOURce**

<b>Command</b>	<code>:MEASure:SOURce &lt;source&gt;[,&lt;source&gt;]</code>
<b>Query</b>	<code>:MEASure:SOURce?</code>
<b>Returned Format</b>	<code>[ :MEASure:SOURce] &lt;source&gt;[,&lt;source&gt;]&lt;NL&gt;</code>
<b>Where:</b>	<code>&lt;source&gt; ::= {CHANnel&lt;n&gt;   FUNCTION{1   2   3   4}   WMEMemory{1   2   3   4})</code>
	<code>&lt;n&gt; ::= integer, 1 or 2 (HP 54520C/54522C), or 1 through 4 (HP 54540C/54542C)</code>

---

**:MEASure:STATistics**

<b>Command</b>	<code>:MEASure:STATistics {{OFF   0}   {ON   1}}</code>
<b>Query</b>	<code>:MEASure:STATistics?</code>
<b>Returned Format</b>	<code>[ :MEASure:STATistics] {0  1}&lt;NL&gt;</code>

---

**MEASure:STATistics:MODE**

<b>Command</b>	<code>:MEASure:STATistics:MODE {NORMAl   SDEViation}</code>
<b>Query</b>	<code>:MEASure:STATistics:MODE?</code>
<b>Returned Format</b>	<code>[ :MEASure:STATistics:MODE] {NORMAl   SDEViation}&lt;NL&gt;</code>

---

**:MEASure:TDELta**

<b>Query</b>	<code>:MEASure:TDELta?</code>
<b>Returned Format</b>	<code>[ :MEASure:TDELta] &lt;value&gt;&lt;NL&gt;</code>
<b>Where:</b>	<code>&lt;value&gt; ::= exponential, difference between x2 and x1 markers</code>

---

**:MEASure:TMAX?**

<b>Query</b>	<code>:MEASure:TMAX?</code>
<b>Returned Format</b>	<code>[ :MEASure:TMAX] &lt;time&gt;&lt;NL&gt;</code>
<b>Where:</b>	<code>&lt;time&gt; ::= exponential, time at maximum voltage</code>

---

---

### :MEASure:TMIN?

Query :MEASure:TMIN?  
Returned Format [:MEASure:TMIN] <time><NL>  
Where: <time> ::= exponential, time at minimum voltage

---

### :MEASure:TSTArt

Command :MEASure:TSTArt <tstart\_argument>  
Query :MEASure:TSTArt?  
Returned Format [:MEASure:TSTArt] <tstart\_argument><NL>  
Where: <tstart\_argument> ::= exponential, time at x1marker in seconds

---

### :MEASure:TSTOp

Command :MEASure:TSTOp <tstop\_argument>  
Query :MEASure:TSTOp?  
Returned Format [:MEASure:TSTOp] <tstop\_argument><NL>  
Where: <tstop\_argument> ::= exponential, time at x2marker in seconds

---

### :MEASure:TVOLT?

Query :MEASure:TVOLT? <tvolt\_argument>,<slope\_and\_occurrence>  
Returned Format [:MEASure:TVOLT] <time><NL>  
Where: <tvolt\_argument> ::= real number representing positive or  
negative voltage level that the waveform must cross  
<slope\_and\_occurrence> ::= slope is the direction of the  
waveform when <voltage> is crossed - rising (space character  
or +) or falling (-)  
occurrence is the number of crossings to be reported (if one  
- the first crossing is reported, if two - the second  
crossing is reported  
<time> ::= exponential, time in seconds of specified voltage  
crossing

---

---

### :MEASure:UNITS

<b>Command</b>	:MEASure:UNITS {PERCent   VOLTs}
<b>Query</b>	:MEASure:UNITS?
<b>Returned Format</b>	[ :MEASure:UNITS] {PERCent   VOLTs}<NL>

---

### :MEASure:UPPer

<b>Command</b>	:MEASure:UPPer [<source,>]<upper_threshold>
<b>Query</b>	:MEASure:UPPer? [<source>]
<b>Returned Format</b>	[ :MEASure:UPPer] <source>,<upper_threshold><NL>
<b>Where:</b>	<source> ::= {CHANnel<n>   FUNCTION{1   2   3   4}   WMEMory{1   2   3   4}} <upper_threshold> ::= integer, user defined upper threshold in percent or volts (selected by :MEASure:UNITS) <n> ::= integer, 1 or 2 (HP 54520C/54522C), or 1 through 4 (HP 54540C/54542C)

---

### :MEASure:VACRms

<b>Command</b>	:MEASure:VACRms
<b>Query</b>	:MEASure:VACRms?
<b>Returned Format</b>	[ :MEASure:VACRms] <value><NL>
<b>Where:</b>	<value> ::= exponential, calculated ac rms voltage

---

### :MEASure:VAMPLitude

<b>Command</b>	:MEASure:VAMPLitude
<b>Query</b>	:MEASure:VAMPLitude?
<b>Returned Format</b>	[ :MEASure:VAMPLitude] <value><NL>
<b>Where:</b>	<value> ::= exponential, difference between top and base voltages

---

### :MEASure:VAverage

<b>Command</b>	:MEASure:VAverage
<b>Query</b>	:MEASure:VAverage?
<b>Returned Format</b>	[ :MEASure:VAverage] <value><NL>
<b>Where:</b>	<value> ::= exponential, calculated average voltage

---

---

### :MEASure:VBASe

**Command** :MEASure:VBASe  
**Query** :MEASure:VBASe?  
**Returned Format** [:MEASure:VBASe] <value><NL>  
**Where:** <value> ::= exponential, voltage at base of selected waveform

---

### :MEASure:VDCRms

**Command** :MEASure:VDCRms  
**Query** :MEASure:VDCRms?  
**Returned Format** [:MEASure:VDCRms] <value><NL>  
**Where:** <value> ::= exponential, calculated dc rms voltage

---

### :MEASure:VDELta?

**Query** :MEASure:VDELta?  
**Returned Format** [:MEASure:VDELta] <value><NL>  
**Where:** <value> ::= exponential, delta V value in volts

---

### :MEASure:VFIFTy

**Command** :MEASure:VFIFTy

---

### :MEASure:VMAX

**Command** :MEASure:VMAX  
**Query** :MEASure:VMAX?  
**Returned Format** [:MEASure:VMAX] <value><NL>  
**Where:** <value> ::= exponential, maximum voltage of selected waveform

---

### :MEASure:VMIN

**Command** :MEASure:VMIN  
**Query** :MEASure:VMIN?  
**Returned Format** [:MEASure:VMIN] <value><NL>  
**Where:** <value> ::= exponential, minimum voltage value of the selected waveform

---

---

### :MEASure:VPP

<b>Command</b>	:MEASure:VPP
<b>Query</b>	:MEASure:VPP?
<b>Returned Format</b>	[ :MEASure:VPP] <value><NL>
<b>Where:</b>	<value> ::= exponential, voltage peak to peak

---

### :MEASure:VRELative

<b>Command</b>	:MEASure:VRELative <percent_argument>
<b>Query</b>	:MEASure:VRELative?
<b>Returned Format</b>	[ :MEASure:VRELative] <percent_argument><NL>
<b>Where:</b>	<percent_argument> ::= integer, Vmarker2 relative position in percent, from 0 through 100

---

### :MEASure:VSTArt

<b>Command</b>	:MEASure:VSTArt <vstart_argument>
<b>Query</b>	:MEASure:VSTArt?
<b>Returned Format</b>	[ :MEASure:VSTArt] <vstart_argument><NL>
<b>Where:</b>	<vstart_argument> ::= exponential, voltage at y1marker

---

### :MEASure:VSTOP

<b>Command</b>	:MEASure:VSTOP <vstop_argument>
<b>Query</b>	:MEASure:VSTOP?
<b>Returned Format</b>	[ :MEASure:VSTOP] <vstop_argument><NL>
<b>Where:</b>	<vstop_argument> ::= exponential, voltage at y2marker

---

### :MEASure:VTIMe?

<b>Query</b>	:MEASure:VTIMe? <vtimme_argument>
<b>Returned Format</b>	[ :MEASure:VTIMe] <voltage><NL>
<b>Where:</b>	<vtimme_argument> ::= real number representing the displayed time from the trigger in seconds
	<voltage> ::= exponential, voltage at specified time

---

### **:MEASure:VTOP**

**Command** :MEASure:VTOP  
**Query** :MEASure:VTOP?  
**Returned Format** [:MEASure:VTOP] <value><NL>  
**Where:** <value> ::= exponential, voltage at the top of the waveform

### **:MEASure:WCOMpare:ALLOWance**

**Command** :MEASure:WCOMpare:ALLOWance <allow\_argument>  
**Query** :MEASure:WCOMpare:ALLOWance?  
**Returned Format** [:MEASure:WCOMpare:ALLOWance] <allow\_argument><NL>  
**Where:** <allow\_argument> ::= real number representing number of vertical divisions of allowance, from 0.0 to 8.0

### **:MEASure:WCOMpare:COMPARE**

**Command** :MEASure:WCOMpare:COMPARE {CHANnel<n> | FUNCTION{1 | 2 | 3 | 4}, WMEMory{1 | 2 | 3 | 4}}  
**Query** :MEASure:WCOMpare:COMPARE?  
**Returned Format** [:MEASure:WCOMpare:COMPARE] {CHANnel<n> | FUNCTION{1 | 2 | 3 | 4}, WMEMory{1 | 2 | 3 | 4}}<NL>  
**Where:** <n> ::= integer, 1 or 2 (HP 54520C/54522C), or 1 through 4 (HP 54540C/54542C)

### **:MEASure:WCOMpare:DESTination**

**Command** :MEASure:WCOMpare:DESTination  
<source\_argument>,<destination\_argument>  
**Query** :MEASure:WCOMpare:DESTination? {CHANnel<n> | FUNCTION{1 | 2 | 3 | 4} | SCreen}  
**Returned Format** [:MEASure:WCOMpare:DESTination] {CHANnel<n> | {FUNCTION{1 | 2 | 3 | 4} | SCreen}} {WMEMory{1 | 2 | 3 | 4} | PMEMory{1 | 2} | MULTiple | OFF}<NL>  
**Where:** <source\_argument> ::= {{SCreen,{OFF | PMEMory{1 | 2}}}} | {{CHANnel<n> | FUNCTION{1 | 2 | 3 | 4}}}  
<destination\_argument> ::= {WMEMory{1 | 2 | 3 | 4} | MULTiple | PMEMory{1 | 2} | OFF}  
<n> ::= integer, 1 or 2 (HP 54520C/54522C) or 1 through 4 (HP 54540C/54542C)

**:MEASure:WCOMpare:HALLowance**

**Command** :MEASure:WCOMpare:HALLowance <allow\_argument>  
**Query** :MEASure:WCOMpare:HALLowance?  
**Returned Format** [:MEASure:WCOMpare:HALLowance] <allow\_argument><NL>  
**Where:** <allow\_argument> ::= real number representing number of  
 horizontal divisions of allowance, from 0.0 to 8.0

**:MEASure:WCOMpare:POSTfailure**

**Command** :MEASure:WCOMpare:POSTfailure {CONTinue | STOP}  
**Query** :MEASure:WCOMpare:POSTfailure?  
**Returned Format** [:MEASure:WCOMpare:POSTfailure] {CONTinue | STOP}<NL>

**:MEASure:WCOMpare:VALLowance**

**Command** :MEASure:WCOMpare:VALLowance <allow\_argument>  
**Query** :MEASure:WCOMpare:VALLowance?  
**Returned Format** [:MEASure:WCOMpare:VALLowance] <allow\_argument><NL>  
**Where:** <allow\_argument> ::= real number representing number of  
 vertical divisions of allowance, from 0.0 to 8.0

**:MEASure:WCOMpare:WTEST**

**Command** :MEASure:WCOMpare:WTEST {MEASure | OFF}  
**Query** :MEASure:WCOMpare:WTEST?  
**Returned Format** [:MEASure:WCOMpare:WTEST] {MEASure | OFF}<NL>

**:MENU**

**Command** :MENU {CHANnel<n>TIMEbase | TRIGger | DISK | DISPlay | DELTa  
 | MATH | SAVE | MEASure | UTILITY | SHOW}  
**Query** :MENU?  
**Returned Format** [:MENU] {CHANnel<n>TIMEbase | TRIGger | DISK | DISPlay |  
 DELTa | MATH | SAVE | MEASure | UTILITY | SHOW}  
**Where:** <n> ::= integer, 1 or 2 (HP 54520C/54522C), or 1 through 4  
 (HP 54540C/54542C)

---

## :MERGe

Command :MERGe <pmemory\_num>  
Where: <pmemory\_num> ::= integer, 1 or 2

---

## :MMEMory:DISPlay

Command :MMEMory:DISPlay {{OFF | 0} | {ON | 1}}  
Query :MMEMory:DISPlay?  
Returned Format [:MMEMory:DISPlay] {0 | 1}<NL>

---

## :MMEMory:FNUMber

Command :MMEMory:FNUMber <failure\_number>  
Query :MMEMory:FNUMber?  
Returned Format [:MMEMory:FNUMber] <failure\_number><NL>  
Where: <failure\_number> ::= integer, 0 to 665

---

## :MMEMory:SOURce

Command :MMEMory:SOURce {CHANnel<n> | FUNCTion{1 | 2 | 3 | 4}}  
Query :MMEMory:SOURce?  
Returned Format [:MMEMory:SOURce] {CHANnel<n> | FUNCTion{1 | 2 | 3 | 4}}<NL>  
Where: <n> ::= integer, 1 or 2 (HP 54520C/54522C), or 1 through 4  
(HP 54540C/54542C)

---

## :MMEMory:STORe

Command :MMEMory:STORe {WMEMory{1 | 2 | 3 | 4}}

---

## :PCFREquency

Command :PCFREquency <cal\_freq>  
Query :PCFREquency  
Returned Format [:PCFREquency] <cal\_freq>  
Where: <cal\_freq> ::= exponential, probe compensation signal  
frequency in hertz

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---

**:PLOT**

---

**Query** :PLOT?

---

**:PMEMory{1 | 2}:CLEar**

---

**Command** :PMEMory{1 | 2}:CLEar

---

**:PMEMory{1 | 2}:DISPlay**

---

**Command** :PMEMory{1 | 2}:DISPLAY {(OFF | 0) | (ON | 1)}  
**Query** :PMEMory{1 | 2}:DISPLAY?  
**Returned Format** [:PMEMory{1 | 2}:DISPLAY] (0 | 1)<NL>

---

**:PMEMory{1 | 2}:MERGe**

---

**Command** :PMEMory{1 | 2}:MERGe

---

**:PMEMory{1 | 2}:SETup?**

---

**Query** :PMEMory{1 | 2}:SETup?  
**Returned Format** PMEMory{1 | 2}:DISP{0 | 1}<NL>

---

**:PLOT?**

---

**Query** :PLOT?

---

**:POWerup(RUNning | STOPped)**

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**Command** :POWerup{RUNning | STOPped}  
**Query** :POWerup?  
**Returned Format** [:POWerup] {STOPped | RUNning}

---

### :PRINT?

Query :PRINT?

---

### :RUN

Command :RUN

---

### :SEQUENTIAL:DISPLAY

Command :SEQUENTIAL:DISPLAY {{OFF | 0} | {ON | 1}}  
Query :SEQUENTIAL:DISPLAY?  
Returned Format [:SEQUENTIAL:DISPLAY] {0 | 1}<NL>

---

### :SEQUENTIAL:EXCLUDE

Command :SEQUENTIAL:EXCLUDE <from\_argument>,<to\_argument>  
Query :SEQUENTIAL:EXCLUDE?  
Returned Format [:SEQUENTIAL:EXCLUDE] <exclude\_list><NL>  
Where: <from\_argument> ::= integer, segment number of the lower end  
of the exclude range  
<to\_argument> ::= integer, segment number of the upper end  
of the exclude range  
number greater than or equal to the value of <from\_argument>  
<exclude\_list> ::= integer, a list of previously captured  
segment numbers separated by commas

---

### :SEQUENTIAL:INCLUDE

Command :SEQUENTIAL:INCLUDE <from\_argument>,<to\_argument>  
Query :SEQUENTIAL:INCLUDE?  
Returned Format [:SEQUENTIAL:INCLUDE] <include\_list><NL>  
Where: <from\_argument> ::= integer, segment number of the lower end  
of the include range  
<to\_argument> ::= integer, segment number of the upper end  
of the include range  
<include\_list> ::= integer, a list of previously captured  
segment numbers separated by commas

---

---

## :SEQUENTIAL:NPOints

**Command** :SEQUENTIAL:NPOints <points\_argument>  
**Query** :SEQUENTIAL:NPOints?  
**Returned Format** [:SEQUENTIAL:NPOints] <points\_argument><NL>  
**Where:** <points\_argument> ::= integer, 4 to 32768

---

## :SEQUENTIAL:NSEGments

**Command** :SEQUENTIAL:NSEGments <segments\_argument>  
**Query** :SEQUENTIAL:NSEGments?  
**Returned Format** [:SEQUENTIAL:NSEGments] <segments\_argument><NL>  
**Where:** <segments\_argument> ::= integer, 1 to 8888 dependent on the  
SEQUENTIAL:NPOints selection

---

## :SEQUENTIAL:SETup?

**Query** :SEQUENTIAL:SETup?  
**Returned Format** :SEQ:DISP {0 | 1};  
EXCL <exclude\_list>;  
INCL <include\_list>;  
NPO <points\_argument>;  
NSEG <segment\_argument>;  
SNUM <segments\_argument>; (Sequential Single Shot Mode Only)  
SOURce CHANnel<n><NL> (Sequential Single Shot Mode Only)  
**Where:** <exclude\_list> ::= integer, a list of previously captured  
segment numbers separated by commas  
<include\_list> ::= integer, a list of previously captured  
segment numbers separated by commas  
<points\_argument> ::= integer, 4 to 32768  
<segments\_argument> ::= integer, 1 to 8888 dependent on the  
points selected  
<n> ::= integer, 1 or 2 (HP 54520C/54522C), or 1 through 4  
(HP 54540C/54542C)

---

---

### **:SEQUENTIAL:SNUMber**

**Command** :SEQUENTIAL:SNUMber <segments\_argument>  
**Query** :SEQUENTIAL:SNUMber?  
**Returned Format** [:SEQUENTIAL:SNUMber] <segments\_argument><NL>  
**Where:** <segments\_argument> ::= integer, 1 to 8888 dependent on the  
number of segments acquired and ACQuire:TYPE currently  
selected

---

### **:SEQUENTIAL:SOURce**

**Command** :SEQUENTIAL:SOURce {CHANnel<n>}  
**Query** :SEQUENTIAL:SOURce?  
**Returned Format** [:SEQUENTIAL:SOURce] {CHANnel<n>}<NL>  
**Where:** <n> ::= integer 1 or 2 (HP 54520C/54522C), or 1 through 4  
(HP 54540C/54542C)

---

### **:SEQUENTIAL:TTAGs?**

**Query** :SEQUENTIAL:TTAGs? <segments\_argument>  
**Where:** <segments\_argument> ::= integer, 1 to 8888 dependent on the  
SEQUENTIAL:NSEGments selection

---

### **:SEQUENTIAL:TTDifference?**

**Query** :SEQUENTIAL:TTDifference?  
**Where:** <segments\_argument>,<segments\_argument>  
<segments\_argument> ::= integer, 1 to 8888 dependent on the  
SEQUENTIAL:NSEGments selection

---

### **:SERial**

**Command** :SERial <serial\_number>  
**Where:** <serial\_number> ::= 10 character serial number within quotes

---

---

**:STATUs?**

<b>Query</b>	:STATUs? <display>
<b>Returned Format</b>	[:STATUs] {0   1}<NL>
<b>Where:</b>	<display> ::= {CHANnel<n>   FUNCtion{1   2   3   4}   WMEMory{1   2   3   4}   PMEMory{1   2}<NL> <n> ::= integer, 1 or 2 (HP 54520C/54522C), or 1 through 4 (HP 54540C/54542C)

---

**:STOP**

<b>Command</b>	:STOP
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**:STORE**

<b>Command</b>	:STORE <source>,<destination>
<b>Where:</b>	<source> ::= {CHANnel<n>   FUNCtion{1   2   3   4}   WMEMory{1   2   3   4}} <destination> ::= {WMEMory{1   2   3   4}} <n> ::= integer, 1 or 2 (HP 54520C/54522C), or 1 through 4 (HP 54540C/54542C)

---

**:SYSTem:DATE**

<b>Command</b>	:SYSTem:DATE <year>,<month>,<day>
<b>Query</b>	:SYSTem:DATE?
<b>Returned Format</b>	[:SYSTem: DATE] "DDMMYYYY"<NL>
<b>Where:</b>	<year>/<YYYY> ::= integer, 1990 through 2059 <month> ::= integer, 1 through 12 <MMM> ::= three digit alphabetic month <day>/<DD> ::= integer, 1 through 31

---

**:SYSTem:DSP**

<b>Command</b>	:SYSTem:DSP <ascii_string>
<b>Query</b>	:SYSTem:DSP?
<b>Returned Format</b>	[:SYSTem:DSP] <ascii_string><NL>
<b>Where:</b>	<ascii_string> ::= string response data containing the last information written on the advisory line

---

---

### :SYSTem:ERRor?

Query :SYSTem:ERRor [{NUMBER | STRing}]  
Returned Format [:SYSTem:ERRor] <error>[,<ascii\_string>]<NL>  
Where: <error> ::= an integer error code  
<ascii\_string> ::= an alpha string specifying the error condition

---

### :SYSTem:HEADER

Command :SYSTem:HEADER {{OFF | 0} | {ON | 1}}  
Query :SYSTem:HEADER?  
Returned Format [:SYSTem:HEADER] {0 | 1}<NL>

---

### :SYSTem:KEY

Command :SYSTem:KEY <key\_code>  
Query :SYSTem:KEY?  
Returned Format [:SYSTem:KEY] <key\_code><NL>  
Where: <key\_code> ::= integer, 0 through 63

---

### :SYSTem:LONGform

Command :SYSTem:LONGform {{OFF | 0} | {ON | 1}}  
Query :SYSTem:LONGform?  
Returned Format [:SYSTem:LONGform] {0 | 1}<NL>

---

### :SYSTem:PIMacro

Command :SYSTem:PIMacro <ascii\_string>  
Where: <ascii\_string> ::= name of the defined macro

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---

**:SYSTem:SEUp**

**Command** :SYSTem:SEUp <block\_data>  
**Query** :SYSTem:SEUp?  
**Returned Format** [:SYSTem:SEUp] <block\_data><NL>  
**Where:** <block\_data> ::= #800002048<setup\_string>  
<setup\_string> ::= block of binary data bytes

---

**:SYSTem:TIME**

**Command** :SYSTem:TIME <hour>,<minute>,<second>  
**Query** :SYSTem:TIME?  
**Returned Format** [:SYSTem:TIME] "HH:MM:SS"<NL>  
**Where:** <hour>/<HH> ::= integer, 0 through 23  
<month>/<MM> ::= integer, 0 through 59  
<second>/<SS> ::= integer, 0 through 59

---

**:SYSTem:UTILITY**

**Command** :SYSTem:UTILITY:GMARKers {ON | OFF}  
:SYSTem:UTILITY:LABels {ON | OFF}  
:SYSTem:UTILITY:FACTOr {ON | OFF}  
:SYSTem:UTILITY:FPANel {ON | OFF}  
:SYSTem:UTILITY:FPANel:TIMEout {<timeout> | INFINITY}  
**Query** :SYSTem:UTILITY:GMARKers?  
:SYSTem:UTILITY:LABels?  
:SYSTem:UTILITY:FACTOr?  
:SYSTem:UTILITY:FPANel?  
:SYSTem:UTILITY:FPANel:TIMEout?  
**Returned Format** [:SYSTem:UTILITY:GMARKers] {ON | OFF}<NL>  
**Where:** <timeout> ::= integer, 0 through 12 (hours)

---

**:TER?**

**Query** :TER?  
**Returned Format** [,TER] {0 | 1}<NL>

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## :TIMEbase:DElay

**Command** :TIMEbase:DElay <delay\_value>  
**Query** :TIMEbase:DElay?  
**Returned Format** [:TIMEbase:DElay] <delay\_value><NL>  
**Where:** <delay\_value> ::= exponential, time from trigger to display  
reference in seconds

---

## :TIMEbase:MODE

**Command** :TIMEbase:MODE {AUTO | TRIGGERed | SINGLE}  
**Query** :TIMEbase:MODE?  
**Returned Format** [:TIMEbase:MODE] {AUTO | TRIGGERed | SINGLE}<NL>

---

## :TIMEbase:RANGE

**Command** :TIMEbase:RANGE <range\_value>  
**Query** :TIMEbase:RANGE?  
**Returned Format** [:TIMEbase:RANGE] <range\_value><NL>  
**Where:** <range\_value> ::= exponential, 10 ns to 50 s in a 1,2,5  
sequence

---

## :TIMEbase:REFerence

**Command** :TIMEbase:REFerence {LEFT | CENTER | RIGHT}  
**Query** :TIMEbase:REFerence?  
**Returned Format** [:TIMEbase:REFerence] {LEFT | CENTER | RIGHT}<NL>

---

## :TIMEbase:RLENgth

**Command** :TIMEbase:RLENgth <length\_argument>  
**Query** :TIMEbase:RLENgth?  
**Returned Format** [:TIMEbase:RLENgth] <length\_argument><NL>  
**Where:** <length\_argument> ::= integer, 500 in the repetitive mode,  
512, 1024, 2048, 4196, 8192, 16384, or 32768 in the  
real-time mode (sequential off), or 4 to 32768 in the  
real-time mode (sequential on), depending on the current  
:SEQUential:NSEGments value

---

## :TIMEbase:SAMPLE

<b>Command</b>	<code>:TIMEbase:SAMPLE {REALtime   REPetitive}</code>
<b>Query</b>	<code>:TIMEbase:SAMPLE?</code>
<b>Returned Format</b>	<code>[{:TIMEbase:SAMPLE}] {REALtime   REPetitive}&lt;NL&gt;</code>

## :TIMEbase:SAMPLE:CLOCK

<b>Command</b>	:TIMEbase:SAMPLE:CLOCK {AUTO   <clock_value>}
<b>Query</b>	:TIMEbase:SAMPLE:CLOCK?
<b>Returned Format</b>	[{:TIMEbase:SAMPLE:CLOCK}] <clock_value><NL>
<b>Where:</b>	<clock_value> ::= exponential, 10S/s to 2GS/s

:TIMEbase:SETup?

Query :TIMEbase:SETup?  
Returned Format :TIME:DEL <delay\_value>;  
                  MODE {AUTO|TRIG|SING};  
                  RANGE <range\_value>;  
                  RLEN <length\_argument>;  
                  REF {LEFT|CENT|RIGH};  
                  SAMPLE {REAL|REP};  
                  SAMP:CLOC {AUTO | <clock\_value>}<NL>  
Where: <delay\_value> ::= exponential, time from trigger to display  
                  reference in seconds  
<range\_value> ::= exponential, 5ns to 50s  
<length\_argument> ::= 500 in the repetitive mode, 512, 1024,  
                  2048, 4196, 8192, 16384, or 32768 in the real-time mode  
                  (sequential off), or 4 to 32768 in the real-time mode  
                  (sequential on), depending on the current  
                  :SEQUENTIAL:NSEGments value  
<clock\_value> ::= exponential, 10S/s to 2GS/s

### **:TRIGger:CENTERed**

Command :TRIGGER:CENTered

---

## :TRIGger:CONDition

<b>Command</b>	<code>:TRIGger:CONDition {ENTER   EXIT   TRUE   FALSE   GT,&lt;gt_argument&gt;   LT,&lt;lt_argument&gt;   RANGE,&lt;range_gt&gt;,&lt;range_lt&gt;}</code>
<b>Query</b> <b>Returned Format</b> <b>Where:</b>	<code>:TRIGger:CONDition?</code> <code>[:TRIGger:CONDition] &lt;argument&gt;&lt;NL&gt;</code> <code>&lt;argument&gt; ::= {ENTER   EXIT   GT,&lt;gt_argument&gt;   LT,&lt;lt_argument&gt;   RANGE,&lt;range_gt&gt;,&lt;range_lt&gt;}   in PATTERN or DELay with QUALify:PTTEN selected; {TRUE   FALSE} (in STATE or DELay with QUALify:STATE selected; or RANGE, &lt;range_gt&gt;,&lt;range_lt&gt; in TV mode)</code> <code>&lt;gt_argument&gt; ::= exponential, 20 ns to 160 ms</code> <code>&lt;lt_argument&gt; ::= exponential, 20 ns to 160 ms</code> <code>&lt;range_gt&gt; ::= exponential, 20 ns to 159.999 ms (must be less than &lt;range_lt&gt;)</code> <code>&lt;range_lt&gt; ::= exponential, 30 ns to 160 ms (must be greater than &lt;range_gt&gt;)</code>

---

## :TRIGger:COUPling

<b>Command</b>	<code>:TRIGger:COUPling {AC   DC   LFReject}</code>
<b>Query</b> <b>Returned Format</b>	<code>:TRIGger:COUPling?</code> <code>[:TRIGger:COUPling] {AC   DC   LFReject}&lt;NL&gt;</code>

---

## :TRIGger:DELay

<b>Command</b>	<code>:TRIGger:DELay {TIME,&lt;time_argument&gt;   EVENT,&lt;event_argument&gt;}</code>
<b>Query</b>	<code>:TRIGger:DELay?</code>
<b>Returned Format</b>	<code>[:TRIGger:DELay] {TIME,&lt;time_argument&gt;   EVENT,&lt;event_argument&gt;}&lt;NL&gt;</code>

---

<b>Where:</b>	<code>&lt;time_argument&gt; ::= exponential, amount of delay from 30 ns to 160 ms</code> <code>&lt;event_argument&gt; ::= integer, number of events from 1 to 16000000</code>
---------------	--

---

**:TRIGger:DELay:SLOPe**

<b>Command</b>	<code>:TRIGger:DELay:SLOPe {POSitive   NEGative}</code>
<b>Query</b>	<code>:TRIGger:DELay:SLOPe?</code>
<b>Returned Format</b>	<code>[ :TRIGger:DELay:SLOPe] {POSitive   NEGative}&lt;NL&gt;</code>

---

**:TRIGger:DELay:SOURce**

<b>Command</b>	<code>:TRIGger:DELay:SOURce {CHANnel&lt;n&gt;   EXternal}</code>
<b>Query</b>	<code>:TRIGger:DELay:SOURce?</code>
<b>Returned Format</b>	<code>[ :TRIGger:DELay:SOURce] {CHANnel&lt;n&gt;   EXternal}</code>
<b>Where:</b>	<code>&lt;n&gt; ::= integer, 1 or 2 (HP 54520C/54522C), or 1 through 4 (HP 54540C/54542C)</code>

NOTE: EXternal available only on HP 54520C/54522C

---

**:TRIGger:FIELD**

<b>Command</b>	<code>:TRIGger:FIELD{ 1   2}</code>
<b>Query</b>	<code>:TRIGger:FIELD?</code>
<b>Returned Format</b>	<code>[ :TRIGger:FIELD] {1   2}&lt;NL&gt;</code>

---

**:TRIGger:GLITch:CENTERed**

<b>Command</b>	<code>:TRIGger:GLITch:CENTERed</code>
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**:TRIGger:GLITch:HOLDoff**

<b>Command</b>	<code>:TRIGger:GLITch:HOLDoff &lt;holdoff_time&gt;</code>
<b>Query</b>	<code>:TRIGger:GLITch:HOLDoff?</code>
<b>Returned Format</b>	<code>[ :TRIGger:GLITch:HOLDoff] &lt;holdoff_time&gt;&lt;NL&gt;</code>
<b>Where:</b>	<code>&lt;holdoff_time&gt; ::= exponential, 40 ns to 320 ms rounded to nearest 20 ns increment</code>

---

---

### :TRIGger:GLITch:LEVel

**Command** :TRIGger:GLITch:LEVel <level\_argument>  
**Query** :TRIGger:GLITch:LEVel?  
**Returned Format** [:TRIGger:GLITch:LEVEL] <level\_argument><NL>  
**Where:** <level\_argument> ::= exponential, for internal triggers,  $\pm 1.5$   
x  
full-scale voltage from center screen, for external triggers  
(HP 54520C/54522C)  $\pm 2$  volts with probe attenuation at 1:1

---

### :TRIGger:GLITch:SOURce

**Command** :TRIGger:GLITch:SOURce {CHANnel<n> | EXTernal}, {HIGH | LOW}  
**Query** :TRIGger:GLITch:SOURCE?  
**Returned Format** [:TRIGger:GLITch:SOURce] {CHANnel<n> | EXTernal}, {HIGH | LOW}  
**Where:** <n> ::= integer 1 or 2 (HP 54520C/54522C), or 1 through 4  
(HP 54540C/54542C)  
NOTE: EXTernal available only on HP 54520C/54522C

---

### :TRIGger:GLITch:WIDth

**Command** :TRIGger:GLITch:WIDth {GT | LT}, <width\_argument>  
**Query** :TRIGger:GLITch:WIDth?  
**Returned Format** [:TRIGger:GLITch:WIDTH] {GT | LT}, <width\_argument><NL>  
**Where:** <width\_argument> ::= exponential, 5 ns to 160 ms

---

### :TRIGger:HOLDoff

**Command** :TRIGger:HOLDoff {{TIME, <holdoff\_time>} |  
{EVENT, <event\_argument>}}  
**Query** :TRIGger:HOLDoff?  
**Returned Format** [:TRIGger:HOLDoff] {TIME, <holdoff\_value>} |  
{EVENT, <event\_argument>}<NL>  
**Where:** <holdoff\_time> ::= exponential, 40 ns to 320 ms  
<event\_argument> ::= integer, 1 to 16000000

---

## :TRIGger:LEVel

<b>Command</b>	:TRIGger:LEVel <level_argument>
<b>Query</b>	:TRIGger:LEVel?
<b>Returned Format</b>	[ :TRIGger:LEVel] <level_argument><NL>
<b>Where:</b>	<level_argument> ::= for internal triggers, $\pm 1.5 \times$ full-scale voltage from center screen; for external triggers, $\pm 2$ volts with probe attenuation at 1:1

## :TRIGger:LINE

<b>Command</b>	:TRIGger:LINE <line_number>
<b>Query</b>	:TRIGger:LINE?
<b>Returned Format</b>	[ :TRIGger:LINE] <line_number><NL>
<b>Where:</b>	<line_number> ::= integer, 1 to 625 (depends on STANDARD and FIELD selection)

## :TRIGger:LOGic

<b>Command</b>	:TRIGger:LOGic {HIGH   LOW   DONTcare}
<b>Query</b>	:TRIGger:LOGic?
<b>Returned Format</b>	[ :TRIGger:LOGic] {HIGH   LOW   DONTcare}<NL>

## :TRIGger:MODE

<b>Command</b>	:TRIGger:MODE {EDGE   PATTern   STATE   DELay   TV   GLITch}
<b>Query</b>	:TRIGger:MODE?
<b>Returned Format</b>	[ :TRIGger:MODE] {EDGE   PATTern   STATE   DELay   TV   GLITch}<NL>

## :TRIGger:NREJect

<b>Command</b>	:TRIGger:NREJect {{OFF   0}   {ON   1}}
<b>Query</b>	:TRIGger:NREJect?
<b>Returned Format</b>	[ :TRIGger:NREJect] {0   1}<NL>

---

### :TRIGger:OCCurrence

<b>Command</b>	:TRIGger:OCCurrence <occurrence_argument>
<b>Query</b>	:TRIGger:OCCurrence?
<b>Returned Format</b>	[ :TRIGger:OCCurrence] <occurrence_argument><NL>
<b>Where:</b>	<occurrence_argument> ::= integer, 1 to 16000000

---

### :TRIGger:OCCurrence:SLOPe

<b>Command</b>	:TRIGger:OCCurrence:SLOPe {POSitive   NEGative}
<b>Query</b>	:TRIGger:OCCurrence:SLOPe?
<b>Returned Format</b>	[ :TRIGger:OCCurrence:SLOPe] {POSitive   NEGative}<NL>

---

### :TRIGger:OCCurrence:SOURce

<b>Command</b>	:TRIGger:OCCurrence:SOURce {CHANnel<n>   EXTernal}
<b>Query</b>	:TRIGger:OCCurrence:SOURce?
<b>Returned Format</b>	[ :TRIGger:OCCurrence:SOURce] {CHANnel<n>   EXTernal}<NL>
<b>Where:</b>	<n> ::= integer, 1 or 2 (HP 54520C/54522C), or 1 through 4 (HP 54540C/54542C)

NOTE: EXTernal available only on HP 54520C/54522C

---

### :TRIGger:PATH

<b>Command</b>	:TRIGger:PATH {CHANnel<n>   EXTernal}
<b>Query</b>	:TRIGger:PATH?
<b>Returned Format</b>	[ :TRIGger:PATH] {CHANnel<n>   EXTernal}<NL>
<b>Where:</b>	<n> ::= integer, 1 or 2 (HP 54520C/54522C), or 1 through 4 (HP 54540C/54542C)

NOTE: EXTernal available only on HP 54520C/54522C

---

### :TRIGger:POLarity

<b>Command</b>	:TRIGger:POLarity {POSitive   NEGative}
<b>Query</b>	:TRIGger:POLarity?
<b>Returned Format</b>	[ :TRIGger:POLarity] {POSitive   NEGative}<NL>

---

**:TRIGger:QUALify**

<b>Command</b>	<code>:TRIGger:QUALify {{EDGE   PATTern   STATE}   {LOW   HIGH}}</code>
<b>Query</b>	<code>:TRIGger:QUALify?</code>
<b>Returned Format</b>	<code>[:TRIGger:QUALify] {{EDGE   PATTern   STATE}   {LOW   HIGH}}&lt;NL&gt;</code>

**:TRIGger:SETup?**

<b>Query</b>	<code>:TRIGger:SETup?</code>
<b>Returned Format</b>	<pre>:TRIG:MODE EDGE; COUP {AC   DC   LFR}; HOLD {{TIME,&lt;holdoff_time&gt;}   EVENT, &lt;event_argument&gt;}); LEV &lt;level_argument&gt;; NREJ {0   1}; SLOP {POS   NEG}; SOUR {CHAN&lt;n&gt;   EXT   LINE   AUX}&lt;NL&gt; (EXT is only valid for the 54520/22)</pre>
	<code>:TRIG:MODE PATT;</code>
	<pre>COND {ENT   EXIT   GT,&lt;gt_argument&gt;   LT,&lt;lt_argument&gt;    RANG,&lt;range_gt&gt;,&lt;range_lt&gt;}; HOLD {{TIME,&lt;holdoff_time&gt;}   EVEN, &lt;event_argument&gt;}); LEV &lt;level_argument&gt;; LOG {HIGH   LOW   DONT}; NREJ {0   1}; PATH {CHAN&lt;n&gt;   EXT}&lt;NL&gt; (EXT is only valid for the 54520/22)</pre>
	<code>:TRIG:MODE STAT;</code>
	<pre>COND {TRUE   FALS}; HOLD {{TIME,&lt;holdoff_time&gt;}   {EVEN, &lt;event_argument&gt;}); LEV &lt;level_argument&gt;; LOG {HIGH   LOW   DONT}; NREJ {0   1}; PATH {CHAN&lt;n&gt;   EXT}; (EXT is only valid for the 54520/22) SLOP {POS   NEG}; SOUR {CHAN&lt;n&gt;   EXT}&lt;NL&gt; (EXT is only valid for the 54520/22)</pre>

## Programmer's Quick Reference Guide

```
:TRIG:MODE DEL;
COND {ENT | EXIT | TRUE | FALS | GT,<gt_argument> |
LT,<lt_argument> | RANG,<range_gt>,<range_lt>};
DEL {{TIME,<time_value>} | {EVEN, <event_value>}};
DEL:SLOP {POS | NEG};
DEL:SOUR {CHAN<n> | EXT}; (EXT is only valid for the 54520/22)
LEV <level_arguments>;
LOG {HIGH | LOW | DONT};
NREJ {0 | 1};
OCC <occurrence_argument>;
OCC:SLOP {POS | NEG};
OCC:SOUR {CHAN<n> | EXT}; (EXT is only valid for the 54520/22)
PATH {CHAN<n> | EXT}; (EXT is only valid for the 54520/22)
QUAL {EDGE | PATT | STAT};
SLOP {POS | NEG};
SOUR {CHAN<n> | EXT}<NL> (EXT is only valid for the
54520/22)

:TRIG:MODE TV;
COND {RANG,<range_gt>,<range_lt>};
FIEL {1 | 2};
HOLD {{TIME,<holdoff_time>} | {EVEN, <event_argument>}};
LEV <level_argument>;
LINE <line_number>;
NREJ {0 | 1};
OCC <occurrence_argument>;
OCC:SLOP {POS | NEG};
POL {POS | NEG};
QUAL {LOW | HIGH};
SOUR {CHAN<n> | EXT}; (EXT is only valid for the 54520/22)
STAN {525 | 625 | USER}<NL>

:TRIG:MODE GLIT;
GLITch:HOLD TIME,<holdoff_time>;
GLITch:LEV <level_argument>;
GLITch:NREJ {0 | 1};
GLITch:SOUR {CHAN<n> | EXT}, {LOW | HIGH}; (EXT is only valid
for the 54520/22)
GLITch:WIDth {GT | LT}, <width_argument><NL>
```

Where:

```
<n> ::= integer, 1 or 2 (HP 54520C/54522C), or 1 through 4
      (HP 54540C/54542C)
<gt_argument> ::= exponential, 20 ns to 160 ms
<lt_argument> ::= exponential, 20 ns to 160 ms
<range_gt> ::= exponential, 20 ns to 159.999 ms (must be less
      than <range_lt>)
<range_lt> ::= exponential, 30 ns to 160 ms (must be greater
      than <range_gt>)
<time_value> ::= exponential, amount of delay from 30ns to
      160ms
<event_value> ::= integer, number of events from 1 to 16000000
<holdoff_time> ::= exponential, 40 ns to 320 ms rounded to
      nearest 20 ns increment
<level_argument> ::= exponential, trigger level in volts
<width_argument> ::= exponential, 5 ns to 160 ms
<event_argument> ::= integer, 1 to 16000000
<line_number> ::= integer, 1 to 625 (depends on STANDARD and
      FIELD selection)
```

---

## :VIEW

**Command** :VIEW <display>  
**Where:** <display> ::=CHANnel<n>|FUNCTION{1 | 2 | 3 | 4} |  
                  PMEMory{1 | 2} | WMEMory{1 | 2 | 3 | 4}  
<n> ::= integer, 1 or 2 (HP 54520C/54522C), or 1 through 4  
                  (HP 54540C/54542C)  
<n> ::= integer 1 or 2 (HP 54520C/54522C)

---

## :WAveform:DATA

**Command** :WAveform:DATA <block\_data>  
**Query** :WAveform:DATA?  
**Returned Format** [:WAveform:DATA] <block\_data><NL>  
**Where:** <block\_data> ::= definite block data in IEEE 488.2 # format

---

## :WAveform:FORMAT

**Command** :WAveform:FORMAT {ASCII | WORD | BYTE | COMPressed}  
**Query** :WAveform:FORMAT?  
**Returned Format** [:WAveform:FORMAT] {ASCII | WORD | BYTE | COMPressed}<NL>

---

## :WAveform:POINTs

**Query** :WAveform:POINTs?  
**Returned Format** [:WAveform:POINTs] {512 | 1024 | 2048 | 4096 | 8192 | 16384 |  
32768}<NL>

---

---

**:WAveform:PREamble**

<b>Command</b>	:WAveform:PREamble <preamble_data>
<b>Query</b>	:WAveform:PREamble?
<b>Returned Format</b>	[ :WAveform:PREamble] <preamble block><NL>
<b>Where:</b>	<preamble_data> ::= <format NR1>,<type NR1>,<points NR1>,<count NR1>,<xincrement NR3>,<xorigin NR3>,<xreference NR1>,<yincrement NR3>,<yorigin NR3>,<yreference NR1> <format> ::= 0 for ASCii format 1 for BYTE format 2 for WORD format 4 for COMPressed format <type> ::= 0 for INVALID type 1 for NORMAL type or REALTIME 2 for AVERAGE type 3 for ENVELOPE type 4 for RAWDATA type 5 for PDETect type

---

**:WAveform:SOURce**

<b>Command</b>	:WAveform:SOURce {CHANnel<n>   WMMemory{1   2   3   4}}
<b>Query</b>	:WAveform:SOURce?
<b>Returned Format</b>	[ :WAveform:SOURce] {CHANnel<n>   WMMemory{1   2   3   4}}<NL>
<b>Where:</b>	<n> ::= integer 1 or 2 (HP 54520C/54522C), or 1 through 4 (HP 54540C/54542C)

---

**:WAveform:TYPE?**

<b>Query</b>	:WAveform:TYPE?
<b>Returned Format</b>	[ :WAveform:TYPE] {INVALID   AVERAGE   ENVELOPE   NORMAL   PDETect   RAWData}<NL>

---

**:WAveform:XINCrement?**

<b>Query</b>	:WAveform:XINCrement?
<b>Returned Format</b>	[ :WAveform:XINCrement] <value><NL>
<b>Where:</b>	<value> ::= exponential, x-increment in the current preamble

---

---

### :WAveform:XORigin?

**Query** :WAveform:XORigin?  
**Returned Format** [:WAveform:XORigin] <value>[,<value>]...<NL>  
**Where:** <value> ::= exponential, x-origin value in the current preamble

---

### :WAveform:XREFerence?

**Query** :WAveform:XREFerence?  
**Returned Format** [:WAveform:XREFerence] <value><NL>  
**Where:** <value> ::= integer, x-reference value in the current preamble

---

### :WAveform:YINCrement?

**Query Syntax:** :WAveform:YINCrement?  
**Returned Format** [:WAveform:YINCrement] <value><NL>  
**Where:** <value> ::= exponential, y-increment value in the current preamble

---

### :WAveform:YORigin?

**Query** :WAveform:YORigin?  
**Returned Format** [:WAveform:YORigin] <value><NL>  
**Where:** <value> ::= exponential, y-origin in the current preamble

---

### :WAveform:YREFerence?

**Query** :WAveform:YREFerence?  
**Returned Format** [:WAveform:YREFerence] <value><NL>  
**Where:** <value> ::= integer, y-reference value in the current preamble

---

### :WMEMory{1|2|3|4}:DISPlay

**Command** :WMEMory{1 | 2 | 3 | 4}:DISPlay {{OFF | 0} | {ON | 1}}  
**Query** :WMEMory{1 | 2 | 3 | 4}:DISPlay?  
**Returned Format** [:WMEMory{1 | 2 | 3 | 4}:DISPlay] {0 | 1}<NL>

---

**:WMEMory{1|2|3|4}:GET**

**Command** :WMEMory{1 | 2 | 3 | 4}:GET {CHANnel<n> |  
**Where:** WMEMory{1 | 2 | 3 | 4} | FUNCTION{1 | 2 | 3 | 4})}  
 <n> ::= integer 1 or 2 (HP 54520C/54522C), or 1 through 4 (HP 54540C/54542C)

**:WMEMory{1|2|3|4}:PROTect**

**Command** :WMEMory{1 | 2 | 3 | 4}:PROTect {{OFF | 0) | (ON | 1)}  
**Query** :WMEMory{1 | 2 | 3 | 4}:PROTect?  
**Returned Format** [:WMEMory{1 | 2 | 3 | 4}:PROTect] {0 | 1}<NL>

**:WMEMory{1|2|3|4}:SETup?**

**Query** :WMEMory{1 | 2 | 3 | 4}:SETup?  
**Returned Format** :WMEM{1 | 2 | 3 | 4}:DISP {0 | 1};  
 PROT {0 | 1};  
 XOFF <offset\_argument>;  
 XRANG <range\_argument>;  
 YOFF <yoffset>;  
 YRANG <yrange><NL>  
**Where:** <range\_argument> ::= exponential, 5 ns to 50 sec  
 <offset\_argument> ::= exponential, time from trigger to  
 display reference in seconds  
 <yoffset> ::= exponential, offset value in volts  
 <yrange> ::= exponential, full-scale range value

**:WMEMory{1|2|3|4}:XOFFset**

**Command** :WMEMory{1 | 2 | 3 | 4}:XOFFset <xoffset\_argument>  
**Query** :WMEMory{1 | 2 | 3 | 4}:XOFFset?  
**Returned Format** [:WMEMory{1 | 2 | 3 | 4}:XOFFset] <xoffset\_argument><NL>  
**Where:** <xoffset\_argument> ::= exponential, time from trigger to the  
 on screen delay reference point. The maximum value  
 depends on the :WMEMory:XRANge setting

---

**:WMEMory{1|2|3|4}:XRANge**

**Command** :WMEMory{1 | 2 | 3 | 4}:XRANge <range\_argument>  
**Query** :WMEMory{1 | 2 | 3 | 4}:XRANge?  
**Returned Format** [:WMEMory{1 | 2 | 3 | 4}:XRANge] <range\_argument><NL>  
**Where:** <range\_argument> ::= exponential, 5 ns to 50 s in a 1,2,5 sequence

---

**:WMEMory{1|2|3|4}:YOFFset?**

**Query** :WMEMory{1 | 2 | 3 | 4}:YOFFset?  
**Returned Format** [:WMEMory{1 | 2 | 3 | 4}:YOFFset] <yoffset><NL>  
**Where:** <yoffset> ::= exponential, offset value in volts

---

**:WMEMory{1|2|3|4}:YRANge?**

**Query** :WMEMory{1 | 2 | 3 | 4}:YRANge?  
**Returned Format** [:WMEMory{1 | 2 | 3 | 4}:YRANge] <yrange><NL>  
**Where:** <yrange> ::= exponential, full-scale range value

---

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#### Safety

This apparatus has been designed and tested in accordance with IEC Publication 348, Safety Requirements for Measuring Apparatus, and has been supplied in a safe condition. This is a Safety Class I instrument (provided with terminal for protective earthing). Before applying power, verify that the correct safety precautions are taken (see the following warnings). In addition, note the external markings on the instrument that are described under "Safety Symbols."

#### Warning

- Before turning on the instrument, you must connect the protective earth terminal of the instrument to the protective conductor of the (mains) power cord. The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. You must not negate the protective action by using an extension cord (power cable) without a protective conductor (grounding). Grounding one conductor of a two-conductor outlet is not sufficient protection.
- Only fuses with the required rated current, voltage, and specified type (normal blow, time delay, etc.) should be used. Do not use repaired fuses or short-circuited fuseholders. To do so could cause a shock or fire hazard.

- Service instructions are for trained service personnel. To avoid dangerous electric shock, do not perform any service unless qualified to do so. Do not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present.

- If you energize this instrument by an auto transformer (for voltage reduction), make sure the common terminal is connected to the earth terminal of the power source.

- Whenever it is likely that the ground protection is impaired, you must make the instrument inoperative and secure it against any unintended operation.

- Do not operate the instrument in the presence of flammable gasses or fumes. Operation of any electrical instrument in such an environment constitutes a definite safety hazard.

- Do not install substitute parts or perform any unauthorized modification to the instrument.

- Capacitors inside the instrument may retain a charge even if the instrument is disconnected from its source of supply.

- Use caution when exposing or handling the flat panel display. Handling or replacing the display shall be done only by qualified maintenance personnel.

#### Safety Symbols



Instruction manual symbol: the product is marked with this symbol when it is necessary for you to refer to the instruction manual in order to protect against damage to the product.



Hazardous voltage symbol.



Earth terminal symbol: Used to indicate a circuit common connected to grounded chassis.

#### WARNING

The Warning sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a Warning sign until the indicated conditions are fully understood and met.

#### CAUTION

The Caution sign denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product. Do not proceed beyond a Caution symbol until the indicated conditions are fully understood or met.

<b>Product Warranty</b>	<p>This Hewlett-Packard product has a warranty against defects in material and workmanship for a period of three years from date of shipment. During the warranty period, Hewlett-Packard Company will, at its option, either repair or replace products that prove to be defective. For warranty service or repair, this product must be returned to a service facility designated by Hewlett-Packard.</p> <p>For products returned to Hewlett-Packard for warranty service, the Buyer shall prepay shipping charges to Hewlett-Packard and Hewlett-Packard shall pay shipping charges to return the product to the Buyer. However, the Buyer shall pay all shipping charges, duties, and taxes for products returned to Hewlett-Packard from another country.</p> <p>Hewlett-Packard warrants that its software and firmware designated by Hewlett-Packard for use with an instrument will execute its programming instructions when properly installed on that instrument. Hewlett-Packard does not warrant that the operation of the instrument software, or firmware will be uninterrupted or error free.</p>	<p><b>No other warranty is expressed or implied.</b></p> <p><b>Hewlett-Packard specifically disclaims the implied warranties of merchantability or fitness for a particular purpose.</b></p>	<p><b>About this edition</b></p> <p>This is the first edition of the <i>HP 54520C and 54540C Series Oscilloscope Programmer's Quick Reference Guide</i>.</p>	<p>The following list of pages gives the date of the current edition and of any changed pages to that edition.</p>
				<p>All pages original edition</p>